Table 6. Summary of benthic macroinvertebrate analysis from samples collected in the Winter of 2000.

6.a. Mud River - Winter 2000							
	MT-2	MT-3	MT-13	MT-14	MT-15	MT-18	MT-23
	Unmined	Unmined	Unmined	Filled	Filled	Filled	Filled/Resid
Number (Abundance)							
Avg	98.00	49.17	102.67	14.67	52.50	299.83	175.17
SD	26.99	31.83	58.35	8.12	13.37	144.26	56.99
Max	132.00	95.00	171.00	23.00	70.00	537.00	266.00
Min	62.00	11.00	16.00	7.00	33.00	144.00	117.00
Taxa (Richness)							
Avg	18.17	10.50	13.17	6.00	6.33	8.50	8.50
SD	3.25	4.51	5.12	2.00	1.75	1.76	2.07
Max	23.00	19.00	21.00	9.00	9.00	11.00	12.00
Min	13.00	6.00	6.00	4.00	5.00	6.00	6.00
Percent 2 Dominant Taxa							
Avg	44.18	55.80	63.26	82.21	76.00	82.57	67.96
SD	7.14	7.65	15.34	14.66	11.36	11.77	8.67
Max	52.87	64.56	77.78	81.82	86.44	93.75	82.93
Min	31.40	44.83	39.18	43.48	60.61	64.16	61.54
EPT Abundance							
Avg	58.50	38.67	79.50	9.67	12.67	29.50	49.50
SD	15.11	29.76	44.85	6.15	7.58	23.73	19.45
Max	74.00	79.00	145.00	19.00	25.00	76.00	87.00
Min	35.00	7.00	13.00	3.00	6.00	11.00	31.00
EPT Richness							
Avg	11.33	5.67	8.00	3.83	3.67	2.17	3.50
SD	2.25	2.50	2.19	1.94	1.21	0.41	0.55
Max	15.00	10.00	11.00	7.00	5.00	3.00	4.00
Min	9.00	3.00	5.00	2.00	2.00	2.00	3.00
Percent EPT							
Avg	60.52	73.93	79.16	64.03	23.50	12.13	28.92
SD	11.28	13.37	11.64	22.59	9.97	11.44	7.89
Max	75.86	92.41	90.28	82.61	35.71	33.63	39.37
Min	48.39	56.52	64.49	23.08	13.56	3.44	16.92
Percent Plecoptera							
Avg	31.92	23.83	10.01	58.13	8.71	0.04	7.65
SD	12.74	18.17	6.82	23.36	3.87	0.10	2.01
Max	51.72	54.55	23.39	81.82	13.11	0.25	10.07
Min	21.51	4.35	1.87	15.38	4.17	0.00	4.27
Percent Ephemeroptera							
Avg	19.29	38.67	58.63	0.72	0.00	0.00	0.00
SD	5.15	17.49	19.86	1.77	0.00	0.00	0.00
Max	28.03	60.76	78.53	4.35	0.00	0.00	0.00
Min	12.64	9.09	32.16	0.00	0.00	0.00	0.00
Percent Trichoptera							
Avg	9.32	11.42	10.52	5.18	14.80	12.08	21.27
SD	3.63	9.02	5.58	5.36	7.05	11.48	8.24
Max	14.06	22.78	20.56	14.29	22.86	33.63	31.22
Min	5.30	0.00	4.29	0.00	5.08	3.19	7.89
Percent Chironomidae							
Avg	22.47	9.49	5.84	16.43	19.13	61.75	47.08
SD	7.97	7.73	5.13	16.02	8.89	19.27	8.56
Max	30.47	23.91	14.02	38.46	31.82	80.10	60.98
Min	9.30	3.45	0.00	0.00	6.56	30.53	36.75
HBI							
Avg	3.36	2.67	2.30	3.07	5.45	5.77	5.22
SD	0.58	1.20	1.05	0.84	0.27	0.22	0.25
Max	3.84	4.55	4.07	4.46	5.73	5.93	5.43
Min	2.47	1.52	1.27	2.29	5.01	5.33	4.77

TABLE 6b

6.b. Spruce Fork - Winter 2009						
	MT-25B	MT-32	MT-39	MT-40	MT-42	MT-48
	Filled	Filled	Unmined	Filled/Resid	Unmined	Filled/Resid
Number (Abundance)						
Avg	213.83	825.67	143.50	444.33	125.17	784.00
SD	109.54	303.36	36.05	300.66	28.74	427.05
Max	357.00	1225.00	172.00	960.00	162.00	1448.00
Min	75.00	563.00	75.00	191.00	79.00	445.00
Taxa (Richness)						
Avg	11.33	11.33	13.83	10.83	20.17	14.83
SD	2.80	1.03	1.94	1.17	2.56	3.19
Max	15.00	13.00	16.00	13.00	23.00	19.00
Min	8.00	10.00	11.00	10.00	17.00	11.00
Percent 2 Dominant Taxa						
Avg	75.55	64.92	47.10	69.92	33.01	66.65
SD	11.68	5.67	6.83	3.28	6.33	8.35
Max	88.89	72.57	58.23	75.73	44.30	82.29
Min	58.82	57.73	36.67	67.54	24.86	58.65
EPT Abundance						
Avg	95.67	218.67	68.00	99.83	84.67	80.67
SD	48.81	76.28	15.68	98.57	22.13	60.83
Max	149.00	351.00	84.00	248.00	107.00	202.00
Min	30.00	139.00	47.00	15.00	50.00	34.00
EPT Richness						
Avg	7.67	3.83	7.50	3.50	11.50	4.67
SD	1.86	0.98	1.05	0.84	1.64	1.03
Max	10.00	5.00	9.00	5.00	13.00	6.00
Min	5.00	3.00	6.00	3.00	9.00	3.00
Percent EPT						
Avg	44.94	27.94	49.13	18.70	67.24	10.39
SD	8.30	7.99	11.37	9.48	5.17	3.68
Max	56.00	36.77	62.67	31.42	75.20	13.95
Min	31.58	14.53	30.30	5.95	62.16	4.43
Percent Plecoptera						
Avg	33.22	21.35	11.00	0.22	16.69	4.36
SD	10.84	6.22	7.99	0.24	5.25	1.88
Max	44.40	29.48	25.56	0.48	23.97	6.68
Min	20.00	13.47	3.80	0.00	9.88	2.17
Percent Ephemeroptera						
Avg	1.64	0.02	16.89	2.29	29.89	0.45
SD	1.59	0.04	11.79	1.03	6.72	0.37
Max	4.00	0.10	34.67	3.96	40.51	1.18
Min	0.00	0.00	3.64	1.57	22.60	0.17
Percent Trichoptera						
Avg	10.08	8.57	21.24	16.19	20.86	5.58
SD	6.64	4.06	6.90	9.11	6.68	3.35
Max	21.01	10.94	29.75	29.67	26.56	9.60
Min	2.59	1.06	13.92	3.97	10.13	2.09
Percent Chironomidae						
Avg	50.41	18.92	25.68	49.72	12.29	46.73
SD	8.44	11.88	6.40	7.11	2.58	8.94
Max	64.21	31.79	32.12	58.59	16.67	56.89
Min	42.67	3.44	18.05	38.28	10.13	31.24
HBI						
Avg	4.56	4.14	4.47	5.41	3.85	5.22
SD	0.46	0.28	0.24	0.31	0.43	0.34
Max	5.28	4.40	4.66	5.82	4.04	5.44
Min	4.13	3.72	4.05	5.07	2.84	4.55

TABLE 6c

S.c. Island Creek - Winter 2000						
	MT-50	MT-51	MT-52	MT-55	MT-57B	MT-60
	Unmined	Unmined	Filled	Filled/Resid	Filled	Filled
Number (Abundance)						
Avg	106.80	80.17	127.33	469.17	81.00	259.67
SD	62.53	36.67	46.42	226.79	32.30	81.36
Max	174.00	145.00	189.00	754.00	133.00	402.00
Min	45.00	40.00	75.00	213.00	40.00	156.00
Taxa (Richness)						
Avg	14.80	10.83	13.50	9.50	11.17	16.83
SD	1.64	4.45	1.52	2.07	2.48	2.32
Max	17.00	19.00	15.00	12.00	16.00	20.00
Min	13.00	6.00	11.00	7.00	9.00	14.00
Percent 2 Dominant Taxa						
Avg	43.17	65.32	56.30	84.77	67.15	50.01
SD	4.21	21.02	10.40	4.74	13.67	9.24
Max	47.42	83.02	74.51	92.88	85.29	61.54
Min	37.28	32.41	44.60	79.71	52.50	34.27
EPT Abundance						
Avg	81.60	67.67	94.17	126.17	29.67	208.33
SD	53.23	28.25	36.30	161.62	7.61	72.17
Max	139.00	115.00	147.00	421.00	39.00	332.00
Min	31.00	33.00	50.00	24.00	20.00	128.00
EPT Richness						
Avg	9.20	7.00	7.50	3.33	7.00	10.50
SD	1.30	2.68	1.05	1.37	1.55	1.87
Max	11.00	12.00	9.00	5.00	9.00	13.00
Min	8.00	4.00	6.00	2.00	5.00	8.00
Percent EPT						
Avg	73.62	85.24	73.89	20.97	39.65	79.89
SD	7.07	3.95	7.89	19.01	12.03	7.07
Max	80.47	90.57	86.23	55.84	51.32	87.24
Min	63.27	79.31	63.31	5.62	26.32	69.76
Percent Plecoptera						
Avg	17.58	19.46	44.58	0.22	24.63	23.19
SD	11.48	12.01	12.66	0.37	6.87	10.81
Max	33.73	35.44	60.78	0.94	31.58	39.09
Min	5.15	6.59	29.55	0.00	14.93	7.52
Percent Ephemeroptera						
Avg	30.48	14.23	14.12	1.45	4.34	10.94
SD	11.39	12.11	10.19	0.89	2.87	3.51
Max	46.55	33.79	32.95	2.56	7.89	16.46
Min	15.56	2.74	5.88	0.42	1.47	7.21
Percent Trichoptera						
Avg	25.56	51.56	15.18	19.29	10.68	45.77
SD	10.33	24.29	5.88	19.88	8.08	8.06
Max	37.11	75.34	22.73	55.04	19.12	53.98
Min	11.83	22.76	8.82	4.12	3.76	31.69
Percent Chironomidae						
Avg	8.31	5.26	12.02	57.27	51.69	10.90
SD	2.83	3.28	4.36	17.34	18.63	3.05
Max	12.07	11.72	17.99	71.62	66.63	16.94
Min	4.12	2.50	5.82	24.67	34.21	8.23
HBI						
Avg	3.46	3.86	3.13	5.37	4.32	3.48
SD	0.21	1.19	0.48	0.22	0.56	0.17
Max	3.71	5.55	3.92	5.70	4.91	3.68
Min	3.20	2.65	2.45	5.03	3.71	3.28

TABLE 7a

Table 7. Summary of benthic macroinvertebrate analysis from samples collected in the Spring of 2000.

7.a. Mud River - Spring 2000							
	MT-2	MT-3	MT-13	MT-14	MT-15	MT-18	MT-23
	Unmined	Unmined	Unmined	Filled	Filled	Filled	Filled/Resid
Number (Abundance)							
Avg	172.00	149.50	178.17	146.00	315.50	141.33	119.17
SD	75.70	31.83	122.82	85.74	179.10	36.10	53.21
Max	308.00	196.00	414.00	252.00	655.00	203.00	212.00
Min	76.00	97.00	82.00	61.00	162.00	106.00	67.00
Taxa (Richness)							
Avg	16.67	15.50	14.83	12.67	9.00	9.50	8.50
SD	3.44	1.97	3.54	2.25	2.00	1.38	2.43
Max	21.00	18.00	20.00	16.00	12.00	11.00	13.00
Min	12.00	14.00	10.00	11.00	6.00	7.00	6.00
% 2 Dominant Taxa							
Avg	52.62	44.66	62.99	74.68	85.29	71.76	63.95
SD	11.68	7.92	7.90	3.53	10.99	7.45	15.17
Max	66.26	55.48	76.81	79.37	94.50	77.31	89.62
Min	34.21	35.14	53.17	70.89	67.28	57.05	49.18
EPT Abundance							
Avg	88.50	103.00	94.50	28.33	33.17	43.17	44.17
SD	30.98	15.91	23.31	18.67	20.15	15.64	11.77
Max	105.00	120.00	123.00	56.00	64.00	69.00	64.00
Min	28.00	74.00	65.00	7.00	6.00	28.00	31.00
EPT Richness							
Avg	7.67	8.67	8.50	5.67	4.33	4.33	4.17
SD	2.42	1.37	1.87	1.75	1.51	0.82	1.17
Max	11.00	10.00	11.00	7.00	6.00	5.00	6.00
Min	4.00	7.00	6.00	3.00	2.00	3.00	3.00
Percent EPT							
Avg	40.40	69.78	63.62	18.83	14.73	31.37	42.06
SD	11.62	6.12	19.00	4.45	14.21	11.67	17.07
Max	61.90	76.35	85.37	24.05	39.51	48.11	67.65
Min	28.16	61.22	29.71	11.48	2.02	21.48	19.81
Percent Plecoptera							
Avg	18.95	25.78	25.81	11.62	2.22	2.13	1.90
SD	12.65	6.55	19.55	3.04	4.38	2.10	1.37
Max	37.50	35.14	64.63	15.19	11.11	6.09	4.41
Min	1.23	17.12	12.32	6.58	0.00	0.00	0.78
Percent Ephemeroptera							
Avg	18.36	44.00	36.30	1.96	5.65	16.60	15.27
SD	11.98	8.56	15.15	2.38	6.71	9.39	15.87
Max	41.72	56.70	51.60	6.35	14.92	29.25	39.71
Min	8.33	32.65	16.18	0.00	0.00	5.04	0.47
Percent Trichoptera							
Avg	3.09	0.00	1.72	5.25	6.87	12.63	24.89
SD	6.39	0.00	0.97	1.56	7.43	7.99	4.97
Max	16.07	0.00	3.30	7.35	21.60	21.01	31.06
Min	0.00	0.00	0.60	2.78	1.90	0.67	17.92
Percent Chironomidae							
Avg	24.81	20.71	25.37	67.56	29.77	17.31	37.83
SD	6.81	6.25	22.47	4.27	29.13	16.25	18.89
Max	30.36	29.59	64.25	73.77	69.01	42.45	73.11
Min	13.16	14.09	0.00	63.29	0.00	4.70	23.53
HBI							
Avg	3.73	3.62	3.63	5.28	5.70	5.19	4.96
SD	0.40	0.32	1.02	0.20	0.28	0.51	0.46
Max	4.42	4.01	4.99	5.63	5.99	5.64	5.67
Min	3.20	3.25	1.99	5.05	5.24	4.28	4.51

TABLE 7b

7.b. Spruce Fork - Spring 2000							
	MT-25B	MT-32	MT-34B	MT-39	MT-40	MT-42	MT-48
	Filled	Filled	Filled	Unmined	Filled/Resid	Unmined	Filled/Resid
Number (Abundance)							
Avg	690.83	594.00	306.00	135.17	229.67	169.67	206.00
SD	558.80	334.28	218.19	43.92	124.02	72.23	152.19
Max	1626.00	876.00	619.00	187.00	375.00	279.00	490.00
Min	154.00	132.00	87.00	75.00	68.00	64.00	80.00
Taxa (Richness)							
Avg	13.83	11.33	8.83	12.17	9.17	16.00	12.50
SD	2.93	3.08	1.33	5.60	2.64	5.18	4.23
Max	18.00	16.00	10.00	20.00	13.00	22.00	20.00
Min	9.00	8.00	7.00	6.00	6.00	8.00	9.00
Percent 2 Dominant Taxa							
Avg	68.48	56.24	72.63	69.07	61.51	49.41	59.05
SD	5.74	9.01	6.16	12.46	4.58	12.01	15.77
Max	78.60	69.61	80.39	81.33	66.19	68.75	76.12
Min	62.91	45.85	62.07	53.11	53.60	36.36	40.69
EPT Abundance							
Avg	305.83	98.83	31.33	111.33	104.33	124.67	50.50
SD	171.46	43.64	22.66	26.56	63.01	47.93	23.55
Max	570.00	170.00	66.00	137.00	187.00	206.00	96.00
Min	119.00	50.00	4.00	68.00	33.00	62.00	27.00
EPT Richness							
Avg	6.50	4.17	2.67	7.33	4.17	10.00	5.83
SD	1.22	1.47	0.82	2.50	1.60	2.66	2.23
Max	8.00	6.00	4.00	10.00	7.00	13.00	8.00
Min	5.00	2.00	2.00	4.00	2.00	7.00	2.00
Percent EPT							
Avg	58.68	22.31	10.77	84.62	44.50	76.18	36.25
SD	22.34	12.55	6.37	11.22	9.51	10.73	24.97
Max	77.27	37.88	22.54	94.06	53.58	96.88	66.21
Min	16.61	9.47	3.92	65.24	27.50	66.99	9.80
Percent Plecoptera							
Avg	9.66	2.39	0.66	18.07	1.49	29.83	2.51
SD	4.48	3.57	0.62	5.01	1.39	6.62	2.83
Max	16.23	7.80	1.45	23.53	3.20	38.07	6.21
Min	3.32	0.00	0.00	9.33	0.00	18.83	0.00
Percent Ephemeroptera							
Avg	37.19	7.46	0.00	57.03	29.96	37.03	17.51
SD	20.91	7.55	0.00	13.55	11.12	13.59	12.35
Max	57.52	20.49	0.00	73.33	40.51	59.38	31.25
Min	0.06	1.06	0.00	35.29	13.33	19.82	4.49
Percent Trichoptera							
Avg	11.82	12.46	8.88	9.73	13.05	9.32	16.22
SD	5.96	6.26	4.00	3.93	7.64	5.58	12.22
Max	19.88	20.71	15.03	16.00	27.94	19.82	37.24
Min	5.19	5.82	3.92	5.65	7.30	3.13	4.56
Percent Chironomidae							
Avg	20.92	27.36	33.67	4.02	30.80	4.98	34.44
SD	9.14	15.22	9.89	2.24	10.96	3.53	23.42
Max	31.70	47.70	43.14	6.78	51.87	8.61	64.90
Min	9.16	9.85	16.84	0.00	22.40	0.00	7.59
HBI							
Avg	4.85	5.13	6.45	3.07	5.56	3.04	4.90
SD	0.68	0.50	0.55	0.11	0.20	0.31	0.59
Max	5.91	5.52	7.39	3.21	5.87	3.48	5.53
Min	3.85	4.41	5.81	2.89	5.31	2.74	3.86

TABLE 7c

7.c. Island Creek - Spring 2000						
	MT-50	MT-51	MT-52	MT-55	MT-57	MT-60
	Unmined	Unmined	Filled	Filled/Resid	Filled	Filled
Number (Abundance)						
Avg	118.83	118.83	141.33	683.50	244.33	221.83
SD	33.64	26.79	64.98	185.54	69.66	72.61
Max	172.00	142.00	258.00	865.00	346.00	341.00
Min	82.00	86.00	90.00	429.00	180.00	124.00
Taxa (Richness)						
Avg	15.67	13.50	16.50	13.17	14.67	15.17
SD	1.75	2.43	4.28	1.33	2.50	2.32
Max	19.00	17.00	23.00	15.00	18.00	18.00
Min	14.00	10.00	11.00	11.00	12.00	13.00
Percent 2 Dominant Taxa						
Avg	51.54	49.71	39.75	76.23	58.91	57.03
SD	6.69	7.31	6.21	9.82	7.46	7.23
Max	63.37	60.56	49.13	88.02	63.57	67.36
Min	44.25	40.00	34.07	65.60	42.76	50.47
EPT Abundance						
Avg	81.17	86.50	75.33	349.17	136.00	123.83
SD	26.54	25.20	36.77	160.97	46.11	32.15
Max	129.00	119.00	146.00	500.00	196.00	182.00
Min	57.00	47.00	45.00	65.00	70.00	95.00
EPT Richness						
Avg	9.33	8.17	8.50	6.00	6.83	7.50
SD	1.51	0.98	1.52	1.10	1.72	1.05
Max	12.00	10.00	11.00	8.00	10.00	9.00
Min	8.00	7.00	7.00	5.00	5.00	6.00
Percent EPT						
Avg	68.43	72.33	55.65	49.56	55.46	56.29
SD	10.00	7.14	16.19	20.03	10.94	14.69
Max	76.99	83.80	72.53	68.38	70.21	87.10
Min	53.27	62.73	26.01	15.15	37.84	44.81
Percent Plecoptera						
Avg	12.17	16.16	25.49	0.73	29.64	12.38
SD	5.39	9.53	8.77	0.52	8.84	9.23
Max	19.47	25.76	35.66	1.63	43.57	30.65
Min	5.81	4.17	16.48	0.23	18.21	6.60
Percent Ephemeroptera						
Avg	51.72	50.81	12.24	27.42	21.87	39.18
SD	8.40	9.59	7.84	21.92	15.47	5.42
Max	63.95	63.33	25.27	50.85	45.21	45.60
Min	40.19	37.88	4.62	1.04	5.95	31.60
Percent Trichoptera						
Avg	4.54	5.35	17.93	21.42	3.95	6.73
SD	4.15	2.54	10.09	10.87	2.50	5.42
Max	11.50	8.45	30.77	39.45	8.57	16.94
Min	0.00	2.26	2.89	8.86	2.13	1.48
Percent Chironomidae						
Avg	13.04	14.55	6.88	41.53	23.44	12.36
SD	6.61	4.95	4.51	21.78	9.60	6.47
Max	24.30	21.21	12.72	78.55	36.24	19.34
Min	3.66	7.75	2.20	17.52	7.98	1.61
HBI						
Avg	3.81	3.77	3.49	5.15	4.08	4.39
SD	0.35	0.49	0.26	0.38	0.39	0.47
Max	4.31	4.56	3.94	5.71	4.50	4.67
Min	3.40	3.21	3.16	4.63	3.42	3.45

TABLE 8

Table 8. Summary statistics for Winter 2000 benthic sampling event.			
	Reference	Filled	Filled/Resid.
Abundance			
Avg	100	234	468
SD	48	273	346
Max	174	1225	1448
Min	11	7	117
Count	41	48	24
Taxa (Richness)			
Avg	14	11	11
SD	5	4	3
Max	23	20	19
Min	6	4	6
Count	41	48	24
Percent 2 Dominant Taxa			
Avg	50	67	73
SD	15	15	9
Max	83	94	93
Min	25	34	59
Count	41	48	24
EPT Abundance			
Avg	68	87	89
SD	33	90	97
Max	145	351	421
Min	7	3	15
Count	41	48	24
EPT Richness			
Avg	9	8	8.75
SD	3	3	1
Max	15	13	6
Min	3	2	2
Count	41	48	24
Percent EPT			
Avg	70	46	20
SD	15	26	13
Max	92	87	56
Min	30	3	4
Count	41	48	24
Percent Plecoptera			
Avg	19	27	3
SD	13	21	3
Max	55	62	10
Min	2	0	0
Count	41	48	24
Percent Ephmeroptera			
Avg	30	4	1
SD	19	6	1
Max	79	33	4
Min	3	0	0
Count	41	48	24
Percent Trichoptera			
Avg	21	15	16
SD	17	14	13
Max	79	54	55
Min	0	0	2
Count	41	48	24
Percent Chironimidae			
Avg	13	30	50
SD	9	23	11
Max	32	80	72
Min	0	0	25
Count	41	48	24
HBI			
Avg	3.4	4.2	5.3
SD	1	1	0.3
Max	5.6	6.9	5.8
Min	1.3	2.3	4.6
Count	41	48	24

TABLE 9

Table 9. Analysis utilized was ANOVA on ranked data followed by multiple comparison testing using Bonferroni t-tests. Degrees of freedom for all test are 2 and 16.

	Degrees of Freedom	F-value	Probability Level	Significantly different from unmined	
Abundance	16	4.50	0.0280	Filled/residential	
Richness	16	2.16	0.1476		
Percent 2 Dominant Taxa	16	7.03	0.0064	Filled, Filled/residential	
EPT Abundance	16	0.09	0.9160		
EPT Richness	16	6.01	0.0113	Filled/residential	
Percent EPT	16	9.06	0.0023	Filled/residential	
Percent Plecoptera	16	5.68	0.0137	Filled/residential	
Percent Ephemeroptera	16	15.50	0.0002	Filled, Filled/residential	
Percent Trichoptera	16	0.87	0.4380		
Percent Chironomidae	16	8.62	0.0029	Filled/residential	
HBI	16	7.11	0.0062	Filled/residential	

TABLE 10

Table 10. Significance testing of the Winter 2000 benthic macroinvertebrate functional feeding groups. Analysis utilized was ANOVA on ranked data followed by muntiple comparison testing using Bonferroni t-tests. Degrees of freedom for all tests are 2 and 16.

Percent of each Functional Feeding Group	Average Unmined	Average Filled	Average Filled/ Residentiial	Degrees of Freedom	F-value	Probability	Significantly different from unmined
Collector/gatherer	29.73	33.99	53.44	16	3.92	0.0411	Filled/Residential
Filterer	4.66	20.07	20.56	16	7.84	0.0042	Filled, Filled/Residential
Scraper	38.10	15.16	15.90	16	5.29	0.0173	Filled
Shredder	19.33	24.98	8.17	16	2.62	0.1040	
Predator	8.11	5.80	1.74	16	3.10	0.0729	
Piercer	0.06	0.00	0.18	16	4.59	0.0267	Filled/Residential

TABLE 11

Table 11. Summary statistics for Spring 2009 benthic sampling event.			
	Reference	Filled	Filled/Resid.
Abundance			
Avg	148	311	310
SD	66	293	289
Max	414	1628	835
Min	64	61	67
Count	42	54	24
Richness			
Avg	15	12	11
SD	4	4	3
Max	22	23	20
Min	6	6	6
Count	42	54	24
Percent 2 Dominant Taxa			
Avg	54	65	65
SD	12	15	13
Max	81	95	90
Min	34	34	41
Count	42	54	24
EPT Abundance			
Avg	96	97	137
SD	33	103	151
Max	206	570	500
Min	28	4	27
Count	42	54	24
EPT Richness			
Avg	9	6	5
SD	2	2	2
Max	13	11	8
Min	4	2	2
Count	42	54	24
Percent EPT			
Avg	68	36	43
SD	17	23	18
Max	97	89	68
Min	28	2	10
Count	42	54	24
Percent Plecoptera			
Avg	21	11	2
SD	11	11	2
Max	65	44	6
Min	1	0	0
Count	42	54	24
Percent Ephemeroptera			
Avg	42	16	23
SD	16	17	16
Max	73	58	51
Min	8	0	0
Count	42	54	24
Percent Trichoptera			
Avg	5	10	19
SD	5	7	10
Max	20	31	39
Min	0	1	5
Count	42	54	24
Percent Chironomidae			
Avg	15	27	36
SD	12	21	19
Max	64	74	79
Min	2	6	8
Count	42	54	24
HBI			
Avg	4	5	5
SD	0.6	1	0.5
Max	5	7	6
Min	2	3	4
Count	42	54	24

TABLE 12

Table 12. Significance testing of the Spring 2000 benthic macroinvertebrate data. Analysis utilized was ANOVA on ranked data followed by multiple comparison testing using Bonferroni *t*-tests. Degrees of freedom of all tests are 2 and 17.

	Degrees of Freedom	F-value	Probability Level	Significantly different from unmined
Abundance	17	1.95	0.1720	
Richness	17	4.17	0.0335	Filled/residential
Percent 2 Dominant Taxa	17	2.09	0.1540	
EPT Abundance	17	0.35	0.7080	
EPT Richness	17	10.33	0.0012	Filled, Filled/residential
Percent EPT	17	7.58	0.0044	Filled
Percent Plecoptera	17	7.47	0.0047	Filled, Filled/residential
Percent Ephemeroptera	17	8.41	0.0029	Filled
Percent Trichoptera	17	13.28	0.0003	Filled/residential
Percent Chironomidae	17	3.31	0.0610	Filled/residential
HBI	17	12.08	0.0005	Filled, Filled/residential

TABLE 13

Table 13. Significance testing of the Winter 2000 benthic macroinvertebrate functional feeding groups. Analysis utilized was ANOVA on ranked data followed by multiple comparison testing using Bonferroni t-tests. Degrees of freedom for all tests are 2 and 17.

Percent of each Functional Feeding Group	Average Unmined	Average Filled	Average Filled/ Residential	Degrees of Freedom	F-value	Probability	Significantly different from unmined
Collector/gatherer	55.84	46.32	61.65	17	2.13	0.1488	
Filterer	4.72	27.25	26.05	17	11.22	0.0008	Filled, Filled/Residential
Scraper	11.79	8.29	6.65	17	1.73	0.2074	
Shredder	21.73	11.22	4.22	17	6.03	0.0105	Filled, Filled/Residential
Predator	6.12	6.68	1.39	17	4.04	0.0368	Filled/Residential
Piercer	0	0.24	3.67	17	2.19	0.1424	

TABLE 14a

Table 14. Water chemistry collected by the US EPA at the benthic macroinvertebrate sampling locations in the Mud River, Spruce Fork and Island Creek watersheds during the Winter 2000 sampling event.

		Mud River - Winter 2000							
		MT02	MT03	MT13	MT14	MT15	MT18	MT23
		Unrelated	*Unrelated*	*Unrelated*	*Filled*	*Filled*	*Filled*	*Filled/Reed*
ALKALINITY	mg/l	11.9	16	8.46	118	244	250	134
ALUMINUM, DISSOLVED	ug/l	265	255			396		263
ANTIMONY, TOTAL	ug/l	27	36	23	173	295	190	149
ARSENIC, TOTAL	ug/l	15	11	32	73	81	67	56
CALCIUM, TOTAL	mg/l	6560	4950	4430	119000	228000	252000	117000
CHLORIDE	mg/l	0.505	0.586	1.12	3.19	5.83	5.94	4.51
DOC	mg/l					5	3.3	1.4
Field Conductivity	Umhos/cm	18.4	67.8	66.6	1300	2094	1968	1160
Field DO	mg/l	14.13	12.23	12.5	13.47	13.51	12.1	13.37
Field pH	su	6.79	6.47	6.38	7.67	7.97	7.54	7.11
Field Temperature	C	-0.1	-0.13	0.01	-0.02	8.4	3.4	0.65
LEAD, TOTAL	ug/l	18	17	18	80	96	95	67
MAGNESIUM, TOTAL	mg/l	3480	2920	2590	119000	153000	146000	83200
MANGANESE, DISSOLVED	ug/l					146		
NITRATE	mg/l	0.46	0.332	0.369	1.57	3.05	10.23	2.365
POTASSIUM, TOTAL	mg/l	2.17	2.49	1.44	0.099	13.9	13.5	0.319
SELENIUM, TOTAL	ug/l	28	46	50	305	365	372	256
SODIUM, TOTAL	mg/l	4.62	3.96	4.18	8.44	9.49	11.5	11.5
THALLIUM, TOTAL	ug/l	21	32	18	333	413	370	295
TOTAL ORGANIC CARBON	mg/l		1.4		2.3	3.2	5.1	2.2

TABLE 14b, 14c

14b. Spruce Fork										
		MT749	MT42	MT749	MT39	MT40	MT42	MT44		
		Filtred	MT42	Filtred	Unmixed	Filted/Round	Unmixed	Filted/Rend.		
ALKALINITY	mg/l	130	513	142	30.5	195			174	
ALUMINUM, DISSOLVED	ug/l								329.1	
ARSENIC, TOTAL	ug/l	64	47	101	75	13			90	
CALCIUM, TOTAL	mg/l	75100	73600	314000	10500	18000	5530	54800		
CHLORIDE	mg/l	2.22	1.54	7.46	0.277	8.14	0.214	6.78		
DOC	mg/L	1	2	1.6					1.5	
Field Conductivity	Umhos/cm	874	769.8	2160	97	611	64.7	737.2		
Field DO	mg/l	14.29	10.89	17.41	8.3	15.07	5.87	20		
Field pH	su	8.11	8.28	7.83	7.97	8.4	7.53	8.3		
Field Temperature	C	0.53	3.34	7.86	2.16	4.37	1.9	3.43		
MAGNESIUM, TOTAL	mg/l	43900	35200	230000	3560	8420	3940	26500		
NITRATE	mg/l	0.763	1.55	4.96	0.591	0.165	0.425	0.193		
POTASSIUM, TOTAL	mg/l	7.16	5.41	15.8	1.45	3.09	1.37	4.76		
SELENIUM, TOTAL	ug/l			405	332					
SILVER, TOTAL	ug/l						1.67			
SODIUM, TOTAL	mg/l	563	179	128	6.19	119		70.8		
SULFATE	mg/l						18.9			
TITANIUM, TOTAL	ug/l	182	208	437	392		25			
TOTAL ORGANIC CARBON	mg/l	2.2	2	2.8	1.1	1.2			1.9	

14c. Island Creek									
		MT40	MT51	MT52	MT55	MT57B	MT69		
		Unmixed	Unmixed	Filted	Filted/Round	Filted	Filted		
ALKALINITY	mg/l	6.78	6.44	11.3	32.8	54.4	103		
ALUMINUM, DISSOLVED	ug/l			140		128	175		
ANTIMONY, TOTAL	ug/l	21	18	69	102	175	85		
ARSENIC, TOTAL	ug/l	57	25	50	42	69	44		
CALCIUM, TOTAL	mg/l	3330	5430	59600	44100	97400	49600		
CHLORIDE	mg/l	0.946	1.89	16.3	8.06	4.15	1.11		
DOC	mg/l	0.59	0.58	2.5	1.1	1.7	1.7		
Field Conductivity	Umhos/cm	54.2	73.4	595	339	1042	554.2		
Field DO	mg/l	6.33	9.14	10.56	10.2	9.58	8.44		
Field pH	su	7.57	7.52	6.7	8.02	8.01	8.08		
Field Temperature	C	1.21	1.38	2.6	0.77	1.01	2.19		
IRON, TOTAL	ug/l			318					
LEAD, TOTAL	ug/l	27	23	44	43	74	38		
MAGNESIUM, TOTAL	mg/l	2240	2800	39700	35550	95400	28600		
NITRATE	mg/l	0.244	0.275	1.24	1.2	3.17	0.183		
POTASSIUM, TOTAL	mg/l	1.26	1.45	3.11	3.08	2.46	3.38		
SELENIUM, TOTAL	ug/l	235	34	355	180	206	133		
SODIUM, TOTAL	mg/l	109	27	95.5	113	158	24.2		
TITANIUM, TOTAL	ug/l	30	24	194	137	321	144		
TOTAL ORGANIC CARBON	mg/l	0.93	1.7	4.5	3.7	2.7	1.8		

TABLE 15a

Table 15. Water chemistry collected by the US EPA at the benthic macroinvertebrate sampling locations in the Mud River, Spruce Fork and Island Creek watersheds during the Spring 2000 sampling event.

15.a. Mud River - Spring 2000

		MT02	MT03		MT13		MT14	MT15	MT16	MT23
		Unmined	Unmined		Unmined		Filled	Filled	Filled	Filled/Reid
ALKALINITY	mg/l	13.44	6.76		6.8		118.4	254.62	234.42	109.4
ALUMINUM, DISSOLVED	ug/l									
ALUMINUM, TOTAL	ug/l						195.5	185.1	188.9	
ANTIMONY, TOTAL	ug/l	31.6	36.2		27.8		131.3	178.8	148.6	122.3
ARSENIC, TOTAL	ug/l	99	71.9		71.7		325.4	428.3	346.7	275.5
CALCIUM, TOTAL	mg/l	4355	3594		2649		109100	225800	184800	90670
CHLORIDE	mg/l	0.68	0.8538		0.726		1.747	4.045	4.4	2.827
DOC	mg/l				1.4		1.6	2.9	2.1	
Field Conductivity	Umhos/c	69.1	58.2		59.9		1208	1902	1661	1090
Field DO	mg/l	10.36	10.73		9.89		10.59	10.61	10.68	10.39
Field pH	su	6.72	6.68		6.42		7.93	8.16	7.79	7.87
Field Temperature	C	16.84	16.7		16.77		18.42	19.03	18.07	20.66
IRON, DISSOLVED	ug/l	222.5								
IRON, TOTAL	ug/l	34.9	116.5		142.2		509.6	221.3	529.8	369.3
LEAD, TOTAL	ug/l						86.6	120.1	92.8	73.8
MAGNESIUM, TOTAL	mg/l	2745	2400		2299		98070	168460	117200	74480
NITRATE	mg/l		0.472							
PHOSPHORUS, TOTAL							0.2879			
POTASSIUM, TOTAL	mg/l	0.583	1.155		1.177		5.852	14.872	11.22	6.138
SELENIUM, TOTAL	ug/l	203	119		109		1260	1804	1566	1133
SODIUM, TOTAL	mg/l	1.76	0.99		1.65		6.05	8.69	7.81	5.94
SULFATE	mg/l	10.8	10.41		11.61		482.65	997.14	680.91	388.32
THALLIUM, TOTAL	ug/l	11.6	27.3		18.6		350.2	523	405	307
TOTAL ORGANIC CARBON	mg/l						2.2	3.2	2.3	

TABLE 15b, 15c

15.b. Spruce Fork

		MT25B Filtered	MT32 Filtered	MT34B Filtered	MT39 Unmixed	MT40 Filtered Resid	MT42 Unmixed	MT48 Filtered Resid
ALKALINITY	mg/l	174.4	143.38	430.62	37.28	201.74	16.74	157.96
CALCIUM, TOTAL	mg/l	72240	57450	187600	8332	18350	4884	44730
DOC	mg/l	1.8	1.9	2.5		1.5		1.5
Field Conductivity	Umhos/c	911.8	733.2	1840	115.7	682.9	73.9	721.9
Field DO	mg/l	12.23	11.3	10.36	12.52	11.34	11.61	10.99
Field pH	su	7.61	8.03	7.13	8	8.24	7.75	8.07
Field Temperature	C	14.43	15.19	16.86	14.63	18.13	15.68	18.86
MAGNESIUM, TOTAL	mg/l	49799	39970	134400	4424	8915	3336	26850
POTASSIUM, TOTAL	mg/l	7.461	5.819	14.11	0.1	3.531	1.452	5.5
SELENIUM, TOTAL	ug/l			21				
SODIUM, TOTAL	mg/l	30.03	11.11	6.38	3.96	115.5	0.88	50.82
SULFATE	mg/l	288.73	230	208.03	19.196	112	15.784	176
TOTAL ORGANIC CARBON		1.5	2.2	4.7	1.1	2.1		1.7
ZINC, TOTAL		16		25.3	12.2	12.8	13.1	17.2

15.c. Island Creek

		MT50 Unmixed	MT51 Unmixed	MT52 Filtered	MT55 Filtered Resid	MT57B Filtered	MT60 Filtered
ALKALINITY	mg/l	24.82	21.76	53.12	89.24	125.4	134.66
ALUMINUM, DISSOLVED	ug/l						111
ALUMINUM, TOTAL	ug/l	203.5	329.1			208.1	122.7
ANTIMONY, TOTAL	ug/l	56.2	36.9	88.8	83.2	145.6	78.5
ARSENIC, TOTAL	ug/l	100.2	71.8	210.6	217.1	321.5	171.1
CALCIUM, TOTAL	mg/l	3615	6757	43900	53160	80660	50480
DOC	mg/l	1.3	1	1.5	1.3	2.2	1.1
Field Conductivity	Umhos/c	55.1	90.8	551.4	639	1038	579.7
Field DO	mg/l	10.67	10.92	10.65	6.91	9.77	10.05
Field pH	su	6.79	6.94	7.38	7.92	7.95	8.18
Field Temperature	C	15.24	16.37	12.95	14.21	16.39	13.24
IRON, TOTAL	ug/l	255.7	254.6			218.5	143.9
LEAD, TOTAL	ug/l	30.1	36.1	56.9	60.4	82.1	47.1
MAGNESIUM, TOTAL	mg/l	2321	2969	33170	36890	89729	28410
PHOSPHORUS, TOTAL	mg/l	0.3479	0.1197	0.1883	0.2094	0.2563	0.1758
POTASSIUM, TOTAL	mg/l	0.517	0.308	1.496	1.639	3.355	1.298
SELENIUM, TOTAL	ug/l	134	136	662	689	1234	621
SODIUM, TOTAL	mg/l	1.1	2.97	7.92	16.72	3.74	29.94
THALLIUM, TOTAL	ug/l	62	59	199	208	373	184
TOTAL ORGANIC CARBON	mg/l	1.2	1.1	1.2	1.4	1.9	1.1
ZINC, TOTAL	ug/l				52.5	20.5		

TABLE 16

Table 16. Summary statistics and statistical comparisons between the unmined, filled and filled/residential sites for water chemistry collected by the US EPA at the benthic macroinvertebrate sampling locations in the Mud River, Spruce Fork and Island Creek watersheds during the Winter 2000 sampling event. Where filled/residential sample size was low, comparisons were made between unmined and filled only. Parameters analyzed in this method are indicated with an asterisk.

		Sample size (UM/F/R)	Unmined	Filled	Filled/Resid	F-value	Probability	Significantly different from unmined
ALKALINITY	mg/l	6/9/4	13.35	173.97	134.70	10.69	0.0011	Filled, Filled/Residential
ANTIMONY, TOTAL*	ug/l	5/6/2	51.29	154.50		23.71	0.0009	Filled
ARSENIC, TOTAL	ug/l	6/9/4	35.80	66.22	40.25	3.93	0.0443	
CALCIUM, TOTAL	mg/l	7/9/4	5.80	138.44	58.70	25.49	<0.0001	Filled, Filled/Residential
CHLORIDE	mg/l	7/9/4	0.78	5.36	6.87	16.63	0.0001	Filled, Filled/Residential
Field Conductivity	Umhos/cm	7/9/4	63.16	1262.89	761.80	29.70	<0.0001	Filled, Filled/Residential
Field DO	mg/l	7/9/4	9.79	12.28	10.66	2.46	0.1155	
Field pH	su	7/9/4	6.30-7.97	6.76-8.28	7.11-8.40	4.77	0.0237	Filled, Filled/Residential
Field Temperature	C	7/9/4	8.92	3.17	7.35	3.19	0.0668	
LEAD, TOTAL*	ug/l	5/6/2	29.43	24.03		27.97	0.0005	Filled
MAGNESIUM, TOTAL	mg/l	7/9/4	3.28	65.40	38.42	28.68	<0.0001	Filled, Filled/Residential
NITRATE	mg/l	7/9/4	8.58	3.03	0.99	4.43	0.02798	Filled
POTASSIUM, TOTAL	mg/l	7/9/4	1.72	7.58	2.82	6.82	0.0067	Filled
SELENIUM, TOTAL*	ug/l	6/7/2	114.00	264.44		5.22	0.043	Filled
SODIUM, TOTAL	mg/l	7/9/4	3.7	16.81	53.65	21.48	<0.0001	Filled, Filled/Residential
SULFATE	mg/l		17.33	569.38	265.75	24.08	<0.0001	Filled, Filled/Residential
THALLIUM, TOTAL	ug/l	5/6/3	86.2	290.22	228	2.9	0.09	
TOTAL ORGANIC CARBON	mg/l	4/9/4	1.19	2.96	2.25	7.96	0.0049	Filled

Mean values presented in Table 16. Statistical analysis conducted using rank data which is not presented.

TABLE 17

Table 17. Summary statistics and statistical comparisons between the unmined, filled and filled/residential sites for water chemistry collected by the US EPA at the benthic macroinvertebrate sampling locations in the Mud River, Spruce Fork and Island Creek watersheds during the Spring 2000 sampling event. Where filled/residential sample size was low, comparisons were made between unmined and filled only. Parameters analyzed in this method are indicated with an asterisk.

		Sample size U/F/FR	Unmined	Filled	Filled/Resid	F-value	Probability	Significantly different from unmined
ALKALINITY	mg/l	7/9/4	18.23	185.45	139.59	19.63	<0.0001	Filled, Filled/Residential
ANTIMONY*	ug/l	5/6/2	37.54	128.6		27.33	0.0005	Filled
ARSENIC*	ug/l	5/6/2	82.92	299.3		23.47	0.0009	Filled
CALCIUM, TOTAL	mg/l	7/9/4	5.03	112.45	51.73	24.01	<0.0001	Filled, Filled/Residential
DOC	mg/l	3/9/3	1.23	1.96	1.43	5.54	0.0198	Filled
Field Conductivity	Umhos/cm	7/9/4	74.67	1056.12	783.45	19.63	<0.0001	Filled, Filled/Residential
Field DO	mg/l	7/9/4	10.96	10.69	9.91	0.36	0.70	
Field pH	su	7/9/4	6.42-8.00	7.13-8.18	7.87-8.24	5.74	0.0124	Filled, Filled/Residential
Field Temperature	C	7/9/4	16.03	16.06	17.97	1.02	0.3815	
IRON, TOTAL	ug/l	5/5/1	198.3	324.5		0.7	0.43	
LEAD*	ug/l	3/6/2	38.4	80.97		7.66	0.0278	Filled
MAGNESIUM, TOTAL	mg/l	7/9/4	2.93	86.57	36.56	27.28	<0.0001	Filled, Filled/Residential
POTASSIUM, TOTAL	mg/l	7/9/4	0.76	7.29	4.20	16.98	0.0001	Filled, Filled/Residential
SELENIUM*	ug/l	5/7/2	148.2	1024.1		6.53	0.03	Filled
SODIUM, TOTAL	mg/l	7/9/4	1.90	12.31	47.25	19.09	<0.0001	Filled, Filled/Residential
SULFATE	mg/l	5/6/3	13.44	546.4	226.12	19.91	<0.0001	Filled, Filled/Residential
THALLIUM*	ug/l	5/6/2	35.7	339		23.47	0.0009	Filled
TOTAL ORGANIC CARBON	mg/l	9/9/3	1.17	2.26	1.73	3.38	0.068	Filled

Mean values presented in Table 17. Statistical analysis conducted using rank data which is not presented.

TABLE 18a, 18b, 18c

Table 18. Habitat and substrate information collected by the US EPA at the beathic macroinvertebrate sampling locations in the Mud River, Spruce Fork and Island Creek watersheds.

18.a. Mud River

	MT-2 Unmined	MT-3 Unmined	MT-13 Unmined	MT-14 Filled	MT-15 Filled	MT-18 Filled	MT-23 Filled/Resid
Stream Order	2	2	1	2	3	2	4
Bank Stability	6	8.5	9	7	8	6.5	7.5
Bank Vegetation	7	8	8.5	8	8	6.5	5
Flows	18	18	18	18	18	18	18
Alteration	17	18	18	17	15	13	14
Embeddedness	14	13	16	12	14	12	14
Substrate	18	11	18	14	11	17	12
Frequency of Riffles	18	18	18	17	17	17	16
Riparian Vegetation	8	9	9	8	8	6	2.5
Sediment Depth	11	14	14	8	6	10	5
Velocity Depth Regime	17	10	10	16	16	13	16
Total Habitat Score	149	153	163	148	145	138	125
Mean Size Class	3.41	4.13	3.33	3.09	2.97	3.52	2.34
Diameter (mm)	31.1	152	25.9	15.4	11.9	39.6	2.7
% Sand and Fines	27.3	16.4	20	32.7	34.6	16.4	78.2

18.b. Spruce Fork

	MT-25B Filled	MT-32 Filled	MT-39 Unmined	MT-40 Filled/Resid	MT-42 Unmined	MT-48 Filled/Resid
Stream Order	2	3	2	4	1	5
Bank Stability	4.5	8	6.5	7.5	8.5	8
Bank Vegetation	7	6	6.5	6.5	8	9
Flows	19	20	17	17	17	16
Alteration	15	7	17	12	16	15
Embeddedness	16	13	16	14	16	14
Substrate	18	14	19	14	19	18
Frequency of Riffles	19	16	20	18	19	18
Riparian Vegetation	7.5	*	7.5	5	8	7.5
Sediment Depth	13	10	17	14	15	12
Velocity Depth Regime	14	17	10	17	14	16
Total Habitat Score	152	133	161	144	165	160
Mean Size Class	3.91	2.7	3.96	3.68	3.47	3.25
Diameter (mm)	93.9	6.5	105.9	56.8	35.8	22.1
% Sand and Fines	1.8	47.3	5.5	14.6	16.4	25.5

18.c. Island Creek

	MT-50 Unmined	MT-51 Unmined	MT-52 Filled	MT-55 Filled/Resid	MT-57B Filled	MT-60 Filled
Stream Order	2	2	1	3	1	2
Bank Stability	5.5	5.5	6.5	7.5		8.5
Bank Vegetation	7	5	7	6.5	0	8
Flows	17	19	18	20		17
Alteration	16	15	12	10		16
Embeddedness	11	12	12	15		16
Substrate	16	18	17	8		17
Frequency of Riffles	17	18	18	17		19
Riparian Vegetation	7	4.5	6.6	5		12.5
Sediment Depth	10	13	13	17		14
Velocity Depth Regime	16	16	16	15		10
Total Habitat Score	142	141	146	138		157
Mean Size Class	3.7	3.18	3.42	4.8		3.61
Diameter (mm)	59.1	18.8	31.7	672.3		48.4
% Sand and Fines	16.4	36.4	25.5	16.4		18.2

TABLE 19

Table 19. Summary statistics and statistical comparisons between the unmined, filled and filled/residential sites for habitat analysis data collected by the US EPA at the benthic macroinvertebrate sampling locations in the Mud River, Spruce Fork and Island Creek watersheds during the Spring 2000 sampling event.						
	Unmined	Filled	Filled/Residential	F-value	Probability	Signigicantly different from unmined
Order	1.70	2.00	4.00	9.87	0.0016	Filled/Residential
Bank Stability	7.10	7.00	7.63	0.13	0.8761	
Bank Vegetation	7.43	7.21	6.50	0.75	0.4903	
Flows	17.70	18.30	17.75	0.70	0.5143	
Alteration	16.70	13.60	12.75	7.83	0.0047	Filled, Filled/Residential
Embeddedness	14.00	13.60	14.25	0.26	0.7771	
Substrate	16.40	15.40	13.00	1.09	0.3618	
Frequency of Riffles	18.30	17.60	17.30	1.37	0.2848	
Riparian Vegetation	7.50	7.50	5.00	1.82	0.1960	
Sediment Depth	13.40	10.60	12.00	1.61	0.2330	
Velocity/Depth Regimes	13.30	14.60	16.50	1.74	0.2085	
Total Habitat Score	153.40	145.60	141.80	1.87	0.1886	
Mean Standard Deviation	3.60	3.30	3.50	0.52	0.6040	
Estimated Geometric mean	61.20	35.30	188.50	0.52	0.6040	
Percent of Sand and Silt	19.80	25.20	33.70	0.25	0.7844	

APPENDIX C

Functional feeding group designations for families collected at the EIS monitoring stations

FAMILY	FAMFFG
Acari	Predator
Aeshnidae	Predator
Ameletidae	Scraper
Baetidae	Collector
Baetiscidae	Collector
Bivalvia	Filterer
Brachycentridae	Collector
Caenidae	Collector
Calopterygidae	Predator
Cambaridae	Collector
Canaceidae	Scraper
Capniidae	Shredder
Ceratopogonidae	Predator
Chironimidae	Collector
Chloroperlidae	Predator
Chrysomelidae	Shredder
Coenagrionidae	Predator
Collembola	Collector
Corbiculidae	Filterer
Cordulegastridae	Predator
Corydalidae	Predator
Cossidae	Shredder
Culicidae	Filterer
Dixidae	Filterer
Dolichopodidae	Predator
Dryopidae	Scraper
Elmidae	Scraper
Empididae	Predator
Entomobryidae	Collector
Ephemerellidae	Collector
Ephemeridae	Collector
Ephydridae	Collector
Gastropoda	Collector
Gerridae	Predator
Glossomatidae	Scraper
Gomphidae	Predator
Helophoridae	Shredder
Heptagenidae	Scraper
Hydracarina	Predator
Hydropsychidae	Filterer

Functional feeding group designations for families collected at the EIS monitoring stations

FAMILY	FAMFFG
Hydroptilidae	Piercer
Isonychiidae	Collector
Isopoda	Collector
Lepidostomatidae	Shredder
Leptophlebiidae	Collector
Leuctridae	Shredder
Leutridae	Shredder
Limnephilidae	Shredder
Lymnaeidae	Collector
Muscidae	Predator
Nemouridae	Shredder
Noctuidae	Shredder
Olgiochaeta	Collector
Optioservus	Scraper
Peltoperlidae	Shredder
Perlidae	Predator
Perlodidae	Predator
Philopotamidae	Filterer
Phoridae	Predator
Physidae	Scraper
Planorbellidae	Collector
Polycentropodidae	Filterer
Psephenidae	Scraper
Psychomyiidae	Collector
Pteronarcyidae	Shredder
Ptilodactylidae	Shredder
Rhyacophilidae	Predator
Saldidae	Predator
Saldulidae	Predator
Salpingidae	Predator
Sialidae	Predator
Simulidae	Filterer
Staphylinidae	Predator
Stratiomyidae	Collector
Tabanidae	Predator
Taeniopterygidae	Shredder
Tanyderidae	Shredder
Tipulidae	Shredder
Turbellaria	Predator
Uenoidae	Scraper
Veliidae	Predator

---- Forwarded by David Rider/R3/USEPA/US on 01/08/2004 01:48 PM -----

FitzKRC@aol.com
01/07/2004 12:01 AM
To: R3 Mountaintop@EPA
cc:
Subject: Comments on Mountaintop/Valley Fill DEIS

January 6, 2004

Mr. John Forren
Project Manager
U.S. Environmental Protection Agency (3ES30)
1650 Arch Street
Philadelphia, PA 19103
Fax: 215-814-2783
Email: mountaintop.r3@epa.gov

Subject: Comments on the Draft Programmatic EIS on Mountaintop Removal/Valley Fills in Appalachia

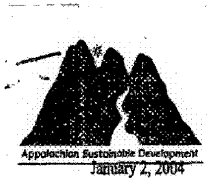
Dear Mr. Forren:

The Kentucky Resources Council, Inc., a nonprofit environmental advocacy organization whose members include numerous individuals who live, work and recreate in areas adversely affected by the construction of valley and head-of-hollow fills, submit these comments concerning the draft EIS on valley fills and mountaintop mining.

KRC endorses and incorporates by reference as if fully set forth below the comments of the Citizens Coal Council, the Kentucky Waterways Alliance, the Friends of the Earth, the Ohio Valley Environmental Coalition, the Kentuckians for the Commonwealth, and Save Our Environment in opposition to the conclusions contained in the DEIS, and urges that the DEIS be withdrawn in order that a document properly reflecting the science contained in the numerous analysis, and consonant with the Clean Water Act and SMCRA, might be proposed. 4-2

Cordially,

Tom FitzGerald
Director
Kentucky Resources Council



Appalachian Sustainable Development
"Building Economy, Community and Environment in Northeast Tennessee and Southwest Virginia"
P.O. Box 791, Abingdon, Virginia 24212-0791
Phone: (276) 623-1121 • Fax: (276) 623-1353 • E-mail: asd@eva.org
www.appsusdev.org

January 2, 2004

Mr. John Forren
US Environmental Protection Agency
1650 Arch Street
Philadelphia, Pennsylvania 19103

REC'D JAN 0 5 2004

Dear Mr. Forren:

I was shocked to learn of the EPA's plan to allow mountaintop removal mining practices to be accelerated and expanded.

Many studies of the impacts of mountaintop removal, including President Bush's own Environmental Impact Statement, make clear how much damage is done to homes, streams, forests and fishing and wildlife through this practice. The proposed new rules will increase all of these problems by eliminating limits on the size of Valley fills and by reducing a 100 foot stream zone protection area. 1-10

Mr. Forren, I live in Appalachia where this mountaintop removal takes place. Since moving here in 1978, I've seen the scars which this kind of practice leaves. I have numerous friends who make their living in the coal industry and I am a strong supporter of economic development throughout the coalfields. But economic development need not and should not continue to occur at the expense of the environment, local farms and local communities.

I urge you to seek another alternative, one which places strong limits on this highly destructive practice and allows local communities to maintain and build upon the natural resource base which they have. 1-5

Thank you,

Anthony Flaccavento
Executive Director
Appalachian Sustainable Development

Printed on Post Consumer Recycled Paper

REC'D JAN 0 8 2004

FOLK
Friends of the Little Kanawha
P.O. Box14
Rock Cave, WV 26234

January 3, 2004

Mr. John Forren
U.S. EPA (3EA30)
1650 Arch Street
Philadelphia, PA 19103

Dear Mr. Forren,

FOLK, Friends of the Little Kanawha, is a watershed organization dedicated to the preservation of the headwaters of the Little Kanawha River. We have been performing benthic monitoring and chemical water analysis on specific tributary sites on the headwaters for 25 years.

The EIS study on Mountain Top Removal confirms that this radical form of strip mining is harmful to streams, the forest and to communities.

There has already been 1200 miles of streams buried under mining waste in valley fills. Burying headwater streams under tons of rubble is instant death to the origin of a stream. These headwater streams are full of organisms that benefit the river downstream and provide the balance needed for stream health. Burying a headwaters alters the morphometry of the affected stream, permanently altering stream volume, flow and organic diversity downriver. | 5-7-2

Our mixed mesophytic forests are the most diverse in the world. The operation of Mountain Top Removal has a predicted loss of over a million acres of timber. | 7-5-2

Communities have disappeared, close neighborhood ties have been broken, people displaced, homesteads have been destroyed. | 10-2-2

REC'D JAN 0 8 2004

FOLK requests:

1. Stop the cavalier burying of headwater streams.
2. Reduce the size of valley fills.
3. Establish limits on deforestation.
4. Do not weaken the 100 foot stream buffer zone.
5. Develop programs to assist those suffering from community displacement.

| 1-8

Thank you.

Sincerely,

FOLK

Friends of the Little Kanawha

ERRIS CO. LLC. A.M.D.G. **PHONE 304 522 3634**
724 OXFORD DR.
HUNTINGTON, WV 25705

8/18/2003

REC'D AUG 2 6 2003

John Farren
U.S. Environmental Protection Agency
1650 Arch St.
Philadelphia, PA 19103

Re: Mountaintop Removal Mining

Dear Mr. Farren,

I am a businessman whose enterprises depend on coal generated electricity in Eastern and Western locations of the U.S. I have seen mountaintop mining and it is insane. There are better ways of mining, and reasonably economical. 1-9

Please accept this letter as a protest against mountaintop removal mining, and as a plea to guide us to something better.

Mayor Bill Gorman of Hazard,Ky, says that flat land created by mining has allowed for the town to grow in a way it otherwise couldn't. I accept this for his town. Other locations more remote are not so fortunate. One such is in WV where thousands of people are permanently displaced, with no real possibility of development on the unstable desolate, flats created, since the location was not planned in conjunction with a town. On the contrary, needs of local residents are completely dismissed, schools lost, people harassed and displaced, state officials ignored. This is continual demonstration by the minning company that there are no long term plans or considerations for betterment after mining operations cease. As a result, the future economics of the area and once secure land values are destroyed for generations to come. The long term elimination of local heritage and future economics of natural resources is lost and affects lands far far beyond the ownership of the mining company. Other methods of mining offer more respect to neighbors, and allow natural resources to return. People currently have no effective recourse to redress. no real protection of law. We are watching our state and its fabulous natural resources get chewed up, and we are seeing our state government unable to cope with it or to offer any protection to citizens directly affected with extreme loss or indirectly affected. 10-2-2

Mountaintop removal seems to result in a negative employment situation. It appears to be the practice, to abandon the employees along with the land after mining. I do not live in close proximity to these operations, but this lack of principle reflects on me as a businessman. It takes the heart out of one who struggles to do what is correct, and my business suffers.

Please accept this letter as a plea to protect citizens and their environment involved in this unneccesary process.

Thank you for your kind attention

Yrs Grattan Gannon

REC'D JAN 0 8 2004

WEST VIRGINIA RIVERS COALITION
801 N. Randolph Avenue • Elkins, West Virginia 26241 • (304) 637-7201 • www.wvrivers.org

January 6, 2004

Mr. John Forren
U.S. EPA (3EA30)
1650 Arch Street
Philadelphia, PA 19103

Dear Mr. Forren,

The June 2003 Mountaintop Mining/Valley Fills in Appalachia Draft Programmatic *Environmental Impact Statement (DEIS) requested public responses.* As requested, West Virginia Rivers Coalition (WVRC) submits the comments that follow.

WVRC represents nearly 3,000 members and 48 affiliate organizations who support our mission to seek "the conservation and restoration of West Virginia's exceptional rivers and streams". Mountaintop removal mining and it's associated practice of valley filling is in direct opposition to the interests and goals of WVRC and our membership.

Our members rely on healthy water. Our members are riparian landowners who consume West Virginia water for drinking and whose children play in our rivers. Our members utilize our water for manufacturing and waste assimilation. Our members recreate in the waters of West Virginia: fishing, hiking, exploring and white water boating. Our members appreciate the aesthetic quality *of West Virginia's streams, the abundance and diversity of our fisheries and the ripacian ecology* of our headwater streams. Our members expect clean and plentiful water resources.

WVRC submits these comments to directly address the concerns of our membership and we join in comments submitted by Earthjustice (letter dated January 6, 2004). It would be simple to limit our comments to a single statement saying the practice of valley filling is an abomination, complete destruction of aquatic and hydrologic resources, and should be stopped. But the comments to follow will respond, as requested, to the voluminous DEIS. 1-9

To summarize, I will reiterate what has been said by Earthjustice and others: the purpose of the DEIS was to develop procedures, policies and guidelines to "minimize, to the maximum extent practicable, the adverse environmental effects to waters of the United States." Yet, the DEIS *abandons its purpose and provides no alternative with substantive recommendations to minimize* the environmental harm caused by mountaintop removal mining and valley filling. 4-2

The following specific observations drawn from the DEIS are of concern to WVRC:

- The language of the DEIS minimizes the significance of documented environmental harm caused by mountaintop removal mining and valley filling. Substantial environmental degradation is caused by these mining practices and the DEIS points to water quality impacts including nutrient imbalances and sedimentation and selenium increases. Yet, the DEIS takes no action to minimize the harm to what it documents as an ecologically important 9-2-2

Seeking the conservation and restoration of West Virginia's exceptional rivers and streams

environment. In fact, the burying of more than a thousand miles of headwater streams, is presented as a statistic without comment about the magnitude of destruction. 5-7-2

- The DEIS does not support the Buffer Zone rule which was introduced 20 years ago to protect land within 100 feet of streams. The law protects these riparian corridors on all intermittent and perennial streams within areas of mining activity. It requires that water quantity, water quality and related environmental resources not be adversely impacted by mining. The Bush administration proposes effectively eliminating the buffer and allowing very adverse impacts to our rivers and their riparian corridors. 1-10
- The DEIS has downplayed its own seemingly obvious conclusions that smaller valley fills are significantly less destructive than larger valley fills. Permit applications which will bury longer lengths of headwater streams will result if the DEIS cannot recognize its own science and limit valley fills, thus minimizing, "to the maximum extent practicable, the adverse environmental effects to waters of the United States." 5-7-2
- The DEIS continues to support the use of general Nationwide Permit 21 which does not provide appropriate scrutiny to environmental impacts of mountaintop removal mining. The general permit is only to be used when discharges have minimal adverse impact, including cumulative impact. The direct and cumulative impacts of filling valleys with mountaintop removal mining waste are enormous. In fact the DEIS calls upon mitigation measures to offset the impacts at the same time it acknowledges that the destruction to headwater streams is not recoverable. 12-1-2
- Often, environmental harm is weighed against economic gain. The DEIS presents extensive economic summary data, none of which provides substantial economic argument for the practice of mountaintop removal, especially any argument to counter the environmental degradation of valley fills. Coal production is expected to be "panned out" in 49 years, according to the DEIS, a figure that is almost double other reports. In the last ten years, production levels of coal have remained consistent but jobs, a critical economic indicator in Appalachia have decreased. Where will the jobs be in 49 years? The question is especially important since the DEIS points to a loss from mining activity of sustainable agricultural land by over 20 percent in roughly the last 50 year period. 9-5-2

To conclude, *remember*, the goal of the DEIS is to minimize "the adverse environmental effects to the waters of the United States". The bullets of this letter point to the fact that the Bush administration is recommending the opposite by encouraging MTR and supporting the destruction of West Virginia's waters with the practice of valley filling.

Valley fills and the burying of headwater streams must be stopped. Mountaintop removal mining, and all mining practices, must protect the health of our water and surrounding environments. WVRC asks that the responsible agencies: U.S. Environmental Protection Agency, U.S. Army Corps of Engineers, U.S. Office of Surface Mining, U.S. Fish and Wildlife Service and WV Department of Environmental Protection, revisit the purpose of the DEIS and present sound practices and policies to minimize the environmental degradation of mountaintop removal mining and valley filling. In lieu of the agencies' ability to make sound and reasonable recommendations, WVRC would expect mountaintop removal mining and valley filling practices to be stopped. 1-5

Sincerely,

Liz Garland
Issues Coordinator

APPALACHIAN VOICES

05 JANUARY 2004

REC'D JAN 0 6 2004

Mr. John Forren
U.S. EPA (3EA30), 1650 Arch Street
Philadelphia, PA 19103
mountaintop.c3@epa.gov

RE: Comments on the Mountaintop Mining/Valley Fills in Appalachia Draft Programmatic Environmental Impact Statement

Greetings:

Please be advised that the following comments regarding the above-referenced Environmental Impact Statement are submitted on behalf of Appalachian Voices, the Southern Appalachian Biodiversity Project and our members.

About Appalachian Voices. Based in Boone, North Carolina, Appalachian Voices is a nonprofit organization committed to protecting and restoring the ecological integrity, economic vitality and cultural heritage of the southern and central Appalachian Mountains. Appalachian Voices accomplishes these goals through our four primary campaigns: (1) Eliminating Air Pollution; (2) Defending Public Lands; (3) Ending Mountain Top Removal Coal Mining; and (4) Promoting Sustainable Forestry.

About the Southern Appalachian Biodiversity Project. Based in Asheville, North Carolina, the Southern Appalachian Biodiversity Project (SABP) is a nonprofit regional organization dedicated to empowering citizens to appreciate, defend and restore the native biodiversity of the Southeast. SABP accomplishes these goals by: (1) seeking permanent protection of public lands; and (2) enforcing the Endangered Species Act.

Request for a Moratorium or Additional Public Hearings. Appalachian Voices and SABP hereby request that EPA implement an immediate moratorium on mountaintop removal/valley fills in Appalachia until an adequate EIS is drafted and adopted. In the absence of such action, we request that EPA hold additional public hearings on this woefully inadequate document. 3-4

Scope of Comments. Recognizing the need for administrative efficiency, Appalachian Voices and SABP have, to the extent practicable, condensed our comments. As such, these comments are responsive only to the extent of information available through the date of submission (noted above) and do not concede the exclusivity of the issues hereafter addressed. Accordingly, Appalachian Voices and SABP retain the right to comment upon, or challenge through administrative or judicial means, any new information, issues, causes of action or other information related to the above-referenced EIS.

20 Battery Park Avenue, Suite 405 Asheville, North Carolina 28801
phone: 828-225-9685 fax: 828-258-0758 www.appvoices.org

Incorporation of Cited Documents and Attachments. Please be advised that any documents, whether hard-copy or electronic, cited in, or attached to, these comments are to be treated as if they were fully incorporated in the body of these comments. As such, it is our intention that these cited documents and attachments be considered part of the complete state and federal administrative records. If any of the agencies involved in reviewing comments would like copies of these documents, Appalachian Voices or SABP will furnish them upon request for a reasonable copying fee.

Request that Public Hearing(s) be Recorded and Transcripts of the Proceedings be Produced and Made Part of the Administrative Record. Appalachian Voices and SABP hereby request that any and all public hearings held relative to the above-referenced EIS be recorded and that transcripts of the proceedings be produced and made part of the complete state and federal administrative records. 3-4

Request that Written Comment Deadline be Extended for Two Weeks After the Public Hearing. It is obvious that the public will be best able to provide meaningful written comments only after they have been afforded an opportunity to hear from all interested parties (proponents and opponents alike) attending any public hearings. As such, Appalachian Voices and SABP hereby request that the deadline for written comments be extended for two weeks following any such hearings. 3-5

Request for Written Response to Comments. Appalachian Voices and SABP hereby request that EPA provide written responses to all public comments, including those of Appalachian Voices, prior to approving the above-referenced EIS. 3-6

Closing Comments. As the attached comments from Ms. Melinda Welton of the Ornithological Society indicate, we too are extremely troubled over the harmful environmental impacts that mountaintop/valley fill mining has had and will continue to have on a wide array of aquatic, terrestrial and avian organisms. Additionally, we are equally dismayed about the economic, cultural and environmental consequences that mountaintop/valley fill mining has, is and will continue to wreak on the good people residing in the coal-fields of Appalachia. These horrific and, far too often deadly, impacts should not be shunted aside in the bureaucratic shuffle simply to ease permitting requirements in an effort to accelerate the production of coal to feed America's voracious, and ever-increasing, appetite for cheap electricity. As such, we demand a truly comprehensive Environmental Impact Statement that adequately assesses meaningful alternatives and their environmental impacts in accordance with both the letter and spirit of the National Environmental Policy Act. 9-5-2

If you have any questions, please do not hesitate to contact our offices.

In peace,

Scott Gollwitzer
Staff Attorney
Appalachian Voices
20 Battery Park Avenue, Suite 405
Asheville, NC 28801
828.225.9685

Tracy Davids
Executive Director
SABP
P.O. Box 3141
Asheville, NC 28802
828.258.2667

CITY OF HAZARD
PERRY COUNTY, KY.

OFFICE OF THE MAYOR
BILL GORMAN

GOOD AFTERNOON:

MY NAME IS BILL GORMAN. I AM THE MAYOR OF HAZARD. I AM IN MY 26th YEAR OF BEING MAYOR. I SERVED OVER THIRTEEN YEARS AS THE VICE-CHAIRMAN OF THE KY. ENVIRONMENTAL QUALITY COMMISSION.

EASTERN KENTUCKY HAS HAD MANY PROBLEMS HISTORICALLY, BUT IN HAZARD AND PERRY COUNTY, WE HAVE BEEN VERY FORTUNATE, BECAUSE WE HAVE BEEN ABLE TO GROW AND DEVELOP.

WE HAVE BEEN ABLE TO TAKE ADVANTAGE OF ROAD CUTS AND FILLS. THE HAZARD BY-PASS COST $31 MILLION DOLLARS, BUT THE BY-PRODUCT OF IT HAS BEEN OVER $100 MILLION IN DEVELOPMENT IN HOLLOW FILLS. 10-3-5

MOUNTAIN TOP REMOVAL AND STRIP JOBS HAVE PROVIDED MUCH NEEDED LAND FOR HOME SITES FOR OUR

PEOPLE.

THEY HAVE PROVIDED OTHER SITES FOR THE APPALACHIAN REGIONAL HOSPITAL AND THE ARH PSYCHIATRIC HOSPITAL AND THE PHYSICIANS OFFICE BUILDING. THE EAST KY. VETERANS CENTER SITS ON A STRIP MINE BENCH.

WHAYNE SUPPLY, PERRY MANUFACTURING AND D.J. NYPRO ARE LOCATED ON MOUNTAIN TOP REMOVAL SITES RIGHT OFF DANIEL BOONE PARKWAY IN HAZARD. APPROXIMATELY 300 HOMES IN HAZARD ARE ON MOUNTAIN TOP REMOVAL SITES. 10-3-5

THE COAL FIELDS INDUSTRIAL PARK IS A 500 ACRE MOUNTAIN TOP REMOVAL SITE. IT IS AN AUTHORITY OF PERRY, HARLAN, LESLIE AND BREATHITT COUNTIES &

PAGE 3

IS OPERATED BY THESE COUNTIES.

TRUS JOIST MACMILLAN IS A WOOD PRODUCTS COMPANY, EMPLOYS ABOUT 500 PEOPLE AND THEY HAVE OVER $130 MILLION INVESTED ON A MOUNTAIN TOP REMOVAL SITE.

AMERICAN WOODMARK IN COAL FIELDS INDUSTRIAL PARK (MOUNTAIN TOP REMOVAL SITE) JUST FINISHED A 200,000 SQ. FT. BUILDING AND CURRENTLY EMPLOYS OVER 300 PEOPLE. 10-3-5

EAST KY. CORPORATION JUST FINISHED A SPEC BUILDING (40,000 SQ. FT.) IN THE INDUSTRIAL PARK.

SYKES, IN THE INDUSTRIAL PARK, (MOUNTAIN TOP REMOVAL SITE) HAS BEEN IN OPERATION SINCE 1999 350 EMPLOYEES ARE CLOSING DOWN. HOWEVER, WE TALKED TO OTHER PEOPLE WHO ARE INTERESTED IN THIS SITE YESTERDAY.

PAGE 4

ADJACENT TO THE COAL FIELDS INDUSTRIAL PARK THE STATE GAVE THE CITY OF HAZARD A GRANT TO PLAN A PROPOSED 18 HOLE GOLF COURSE.

ACROSS THE ROAD FROM THE COAL FIELDS INDUSTRIAL PARK IS ANOTHER MOUNTAIN TOP REMOVAL SITE. THE WENDELL H. FORD REGIONAL AIRPORT. THE AIRPORT HAS TWO RUNWAYS - ONE IS 3200 FT. AND THE OTHER 5,000 FT. WE JUST RECEIVED A $2 MILLION FEDERAL GRANT TO EXTEND THE RUNWAY. THIS $10 MILLION PROJECT INCLUDES A NEW TERMINAL, A V.O.R. SYSTEM AND OTHER STATE OF THE ART EQUIPMENT. 10-3-5

THERE IS A NEW WAL-MART LOCATION ON HIGHWAY 80. THIS DEVELOPMENT WILL BE COSTING APPROXIMATELY $50 MILLION DOLLARS DEVELOPED AROUND A HOLLOW FILL AND MOUNTAIN TOP REMOVAL SITE TO BE COM-

PAGE 5

PLETED NEXT YEAR.

PERRY COUNTY DETENTION CENTER, A $5.3 MILLION STRUCTURE AND KY. STATE POLICE, POST 13 ARE ALSO ON THE SITE.

THE MINING INDUSTRY IS DOING A GOOD JOB IN RECLAMATION. WE URGE YOU IN YOUR RECLAMATION POLICIES TO ENCOURAGE MINING COMPANIES TO RECLAIM THE LAND WHERE WE CAN GET THE MAXIMUM BENEFIT AFTER MINING FOR DEVELOPMENT AND LAND USE.

10-3-5

"Sandra K. Goss"
<skgoss@esper.com> To: R3 Mountaintop@EPA
cc:
Subject: Draft EIS Comment
01/06/2004 02:13 PM

January 6, 2004

Mr. John Forren
U.S. EPA (3EA30)
1650 Arch Street
Philadelphia, PA 19103

Dear Mr. Forren,

I write in regard to the Draft Programmatic Environmental Impact Statement on Mountain Top Mining/Valley Fill in the Appalachian region of the eastern United States, on behalf of Tennessee Citizens for Wilderness Planning, a state-wide organization with 500+ members.

There are several issues in the draft EIS that concern us. The primary one is water degradation. Data and accompanying studies confirm that the environmental harm caused by mountaintop removal and valley fill operations is significant and mostly irreversible. More that 1,000 miles of headwater streams have been destroyed or degraded due to valley fill from mountaintop removal mining, with great harm to aquatic life forms downstream. The laws and regulations that protect clean water must not be weakened particularly the proposal to change the stream buffer zone rule that prohibits mining activity within 100 feet of streams. This rule should be strictly enforced for valley fills and in all other cases.

5-5-2

1-10

Another area of concern is loss of forests, an ongoing problem in the Appalachians. The draft EIS projects that Tennessee will issue permits causing the loss of 9,154 acres of forest between 2003 and 2012 based on permits issued between 1992 and 2002. However, between December 2002 and October 2003, over 5,000 acres of surface mining permits have already been

7-5-2

approved. This potential underestimate of future mining impacts is substantial and needs to be investigated and incorporated in the analysis of cumulative impacts in a revised draft EIS. 9-1-2

The only mitigation offered in the draft EIS for the destruction of large areas of hardwood forest habitat by mining operations is a suggestion that the mine sites could be reforested after operations cease. Convincing evidence that a hardwood forest, essentially the same as the one removed during mining, can be reestablished in a reasonable amount of time, needs to be presented before this method can be offered as mitigation for the loss of hundreds of thousands of acres of biologically diverse hardwood forest habitat. 7-5-3

The damage to water and habitat from mountaintop removal result in a loss of habitat for animals. The Appalachians are an international treasure of biodiversity, with a number of Birds of Conservation Concern. The draft EIS does not address Executive Order 13186, which instructs federal agencies to integrate bird conservation principles and practices into agency activities. The Executive Order needs to be implemented regarding the Mountaintop Removal Mining in the entire study area. 7-3-1

There have been numerous studies conducted in connection with the draft EIS. It seems that the studies with any hint of conservation were ignored. Economic studies prepared for the draft EIS indicate that significant restrictions on the size of valley fills would not cause serious economic harm. The environmental and economic studies prepared for the draft EIS do not lend any support to the administration's proposed "preferred alternative" that recommends weakening existing environmental laws that limit the size and location of valley fills. 1-10

We request a revision of the Draft EIS that will address some of the glaring gaps mentioned above. Thank you for the opportunity to comment.

Sincerely,

Sandra K. Goss
Executive Director
Tennessee Citizens for Wilderness Planning

Sandra K. Goss
4308 Thornwood Drive
Knoxville, Tennessee 37921
865.522-3809
skgoss@ esper.com

TRIAL LAWYERS FOR PUBLIC JUSTICE, P.C.

AUG - 7 2003

RECD

August 5, 2003

John Forren
U.S. EPA (3EA30)
1650 Arch Street
Philadelphia, PA 19103

Re: Request for Extension of the Public Comment Period on the May 29, 2003 Draft Environmental Impact Statement on Mountaintop Removal Coal Mining

Dear Mr. Forren:

Cindy Rank of the West Virginia Highlands Conservancy has sent you a letter requesting a 90-day extension of the August 29, 2003 deadline for submitting public comments on the May 29, 2003 Draft Environmental Impact Statement (DEIS) on mountaintop removal coal mining in Appalachia. On behalf of the Conservancy, I am sending this letter in further support of its request for an extension of time.

The Conservancy took the lead in negotiating and obtaining the 1998 settlement agreement that resulted in the preparation of this DEIS. It therefore has a special interest in determining that the DEIS fulfills the United States' obligations under that agreement. To carry out this task, the Conservancy sent FOIA requests in June 2003 to West Virginia, OSM, EPA, FWS, CEQ, and the Army Corps seeking records used in preparing the DEIS. 3-5

West Virginia has responded to this request by producing a CD-ROM with over 5,000 email messages and attachments. These files contain tens of thousands of pages. Most of these documents contain highly relevant communications by the Steering Committee members who were directly involved with preparing the EIS. The Conservancy cannot reasonably review and analyze all of this material, in addition to the voluminous materials in the DEIS itself, by August 29.

EPA and CEQ requested an extension of time until August 18, 2003 to produce a full response to the FOIA requests. The Conservancy agreed with that request, with the understanding that CEQ and EPA would produce documents prior to that date as soon as they became available. So far, no documents have been produced. Given the volume of the State's response, and the delay in these additional responses, the Conservancy cannot reasonably review EPA's and CEQ's responses and prepare comments by August 29.

Reply to:
National Headquarters
1717 Massachusetts Avenue, NW
Suite 800
Washington, DC 20036-2001
Phone: (202) 797-8600
Fax: (202) 232-7203

West Coast Office
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Phone: (510) 622-8150
Fax: (510) 622-8155

E-Mail: tlpj@tlpj.org
Web Site: www.tlpj.org

The DEIS is of exceptional public and environmental importance. It states that mountaintop mining causes "fundamental changes to the terrestrial environment," and "significantly affect[s] the landscape mosaic," with post-mining conditions "drastically different" from pre-mining conditions. According to the DEIS, mining impacts on the nutrient cycling function of headwater streams "are of great concern." Mining impacts to habitat of interior forest bird species have "extreme ecological significance." Mining could impact 244 terrestrial species. The loss of this genetic diversity "would have a disproportionately large impact on the total aquatic genetic diversity of the nation."

The DEIS is unusually lengthy and complex. It contains nearly 4,000 pages and encompasses over 30 technical studies. West Virginia's FOIA response indicates that Steering Committee members spent 14 weeks camped at the Interior Department in early 2003 rewriting the document. See May 27, 2003 Hostile Q&A Draft, p. 1. As a result, it differs tremendously from the preliminary draft that the Conservancy obtained in response to a prior FOIA request in 2002. West Virginia's FOIA response also contains a set of agency talking points in which the agencies admit that "mountaintop mining is a complex issue" and that the DEIS is "a very large and complicated document." See May 29, 2003 Communications Strategy, p. 2.

I therefore hope that you will agree that an extension of time is needed.

Sincerely,

Jim Hecker

Jim Hecker

Comments of West Virginia Highlands Conservancy and Ohio Valley Environmental Coalition

on the

Draft Programmatic Environmental Impact Statement on
Mountaintop Removal Mining/Valley Fill Activities in Appalachia

Prepared by:

James M. Hecker
Benjamin Wakefield
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Joseph M. Lovett
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P.O. Box 507
Lewisburg, WV 24901

Counsel for West Virginia Highlands Conservancy and Ohio Valley Environmental Coalition

January 5, 2004

Table of Contents

The West Virginia Highlands Conservancy and the Ohio Valley Environmental Coalition submit the following comments on the Draft Environmental Impact Statement (DEIS) for mountaintop removal mining and valley fills in Appalachia.

I. The DEIS Violates the 1998 Bragg Settlement Agreement

A. The Agreement Required the U.S. to Develop Alternatives to Minimize Environmental Impacts

Under the 1998 Bragg Settlement Agreement, the United States agreed to prepare an EIS:

> on a proposal to consider developing agency policies, guidance, and coordinated agency decision-making processes to minimize, to the maximum extent practicable, the adverse environmental effects to waters of the United States and to fish and wildlife resources affected by mountaintop mining operations, and to environmental resources that could be affected by the size and location of excess spoil disposal sites in valley fills.

Thus, the central, agreed purpose of that EIS was "to minimize ... the adverse environmental effects" of mountaintop mining operations and valley fills. The January 16, 2001 Executive Summary of the Mountaintop Mining/Valley Fill Status Report on the EIS confirmed that "[t]he agencies agreed to prepare an Environmental Impact Statement (EIS) to consider new guidance and policies to minimize the adverse impacts of mountaintop mining and valley fills." Ex. 4, p. 1.[1] The DEIS violates this agreement. The DEIS does not analyze a single action alternative that is designed to minimize environmental impacts. Instead, the DEIS only analyzes process alternatives that are designed to streamline agency decision making. 1-13

B. From 1998 Until Mid-2002, Preliminary Drafts Recognized that the DEIS Had to Include Action Alternatives to Minimize Environmental Impacts

The process alternatives in the May 2003 DEIS are a radical change from the action alternatives in earlier drafts of the DEIS. The January 16, 2001 Executive Summary of the Mountaintop Mining/Valley Fill Status Report on the EIS stated that "the agencies formulated alternatives for the draft EIS that evaluate changes to the current restrictions on mountaintop mining operations in varying degrees." Ex. 4, p. 5. This summary continued:

> The alternatives use watershed size as a frame of reference as described below. This is considered a definitive and practical basis for comparing the economic and environmental consequences among the respective alternatives. A preferred alternative will not be determined until after the draft EIS has been circulated for public review and public comments have been considered.

Id. (emphasis added). Thus, in January 2001, there was no doubt that the United States believed that the Settlement Agreement required consideration of alternatives to restrict valley fills. A

[1]References are to the exhibit list and exhibits accompanying this letter.

Preliminary Draft EIS was issued in January, 2001. It contained three action alternatives that restricted valley fills to ephemeral or intermittent streams, retained the 100-foot stream buffer zone (SBZ) rule, and required adequate soil practices and forestry PMLUs. Ex. 3, pp. ES-6, IV-1. Different versions of these same alternatives were present in later drafts until June 2002. For example, a March 2002 draft stated:

> The most significant distinction between the four alternatives is how each one addresses Issue 1, "Direct loss of streams and stream impairment." The question of what portions of a stream can be legally filled under SMCRA authority was central to the *Bragg v. Robertson* lawsuit. The District Court decision in that case established that the SMCRA stream buffer zone regulations at 30 CFR 816.57 and 817.57 do not allow mining activities (including valley fills) within 100 feet of intermittent or perennial streams. The Fourth Circuit Court of Appeals later vacated the District Court's decision, but on grounds unrelated to the applicability of the stream buffer zone rule. Because of the atmosphere of regulatory uncertainty surrounding this issue, and the importance of allowable valley fill size to mine viability and environmental impacts, the agencies developed the EIS alternatives around it. Each alternative proposes different changes to regulatory programs that determine the allowable extent of stream loss through valley filling. The amount of valley filling that is allowable will affect the amount of mining that can occur, which in turn will determine the environmental and economic consequences of selecting a given alternative.

Ex. 21, Att., p. 5 (emphasis added). *See also* Ex. 24, p. IV-2. The Proposed Agenda for a June 18, 2002 Steering Committee meeting describes the four alternatives as follows:

Table IV-1.Mountaintop Mining / Valley Fill EIS Alternative Summary	
Alternative A	No changes to the SMCRA and CWA programs in effect in 1998
Alternative B	Depending on the outcome of a detailed, permit-by-permit baseline data collection; thorough, site-specific, significant adverse impact analyses; and, consideration of alternatives for avoidance and minimization, valley fills could be allowed in ephemeral, intermittent, and perennial stream segments. Mitigation of unavoidable impacts would require in-kind replacement of aquatic functions and values within the watershed.
Alternative C	Valley fills could be located in ephemeral and intermittent streams. Permit-by-permit baseline data collection and site-specific alternatives analyses would be required (although not necessarily as rigorous as in Alternative B) to demonstrate that avoidance and minimization were considered. Mitigation options for unavoidable impacts would be somewhat more varied and thus more flexible than under Alternative B.

1-13

Alternative D	Valley fills could be located only in the ephemeral portion of streams. Permit-by-permit baseline data collection would be more limited than under Alternative B, and alternative analyses would demonstrate that minimization of downstream or indirect impacts were considered. Mitigation could include compensation in lieu of in-kind replacement of lost aquatic function and value.

Ex. 33, Proposed Agenda, p. 7.

C. In October 2001, the Deputy Secretary of Interior Ordered a Complete Change in the Direction and Purpose of the EIS

However, on October 5, 2001, J. Steven Griles, Deputy Secretary of the U.S. Department of the Interior, issued a letter to the CEQ, Office of Management and Budget (OMB), EPA, and COE, stating in pertinent part:

> We believe the [MTM/VF] EIS is the logical vehicle to address environmental protection and promote government efficiency, while meeting the nation's energy needs... We do not believe that the EIS, as currently drafted, focuses sufficiently on these goals. We must ensure that the EIS lay the groundwork for coordinating our respective regulatory jurisdiction in the most efficient manner. At a minimum, this would require that the EIS focus on centralizing and streamlining coal mine permitting, and minimizing or mitigating environmental impacts.

1-13

Ex. 7, p. 1 (emphasis added). In an October 11, 2001 e-mail, Mike Robinson (OSM) explained:

> OSM has received some executive direction from the Department of the Interior on a[n] overall theme for the EIS to embrace... It's ... in line with the President's desired direction for the energy policy. [T]he document was shared by Deputy Secretary Griles with many of the principals of our agencies this Monday at a meeting with the President's [CEQ].

Ex. 8, p. 2.

In response to the Griles letter, OSM developed a "Vision" statement.[2] *See* 10/19/01 Hoffman e-mail, Ex. 9 ("I've also included the 'vision' that OSM developed in response to the Griles letter"). In the heading of the OSM "vision statement" clearly appeared "the vision," as follows:

[2]Ex. 9, p.1: "I've also included the 'vision' that OSM developed in response to the Griles letter."

The Vision: ***Streamline the regulation of valley fills by creating a "one-stop" permitting authority to satisfy all pertinent statutory requirements.***

Ex. 9, Att., p. 2 (bold type, underlining, and italics in original). The "OSM vision" sought to address the "problem" that "[t]he Bragg settlement agreement increased COE and EPA involvement in the review of coal mining permit applications" by creating "a comprehensive 'one-stop' permitting authority within state government to satisfy CWA and SMCRA." Id., p. 2 (emphasis in original). The "OSM Vision" explained:

> **Refocusing of the EIS**: ... The EIS, as currently drafted, ... does not sufficiently consider options for centralizing and streamlining coal mine permitting. The scope of the EIS should be narrowed to focus on minimizing and mitigating impacts to the waters of the U.S. rather than the broad scope currently contained in the draft.

Id., p. 4 (bold type in original, underlining added). The new "OSM Vision" represented a dramatic departure from the policy and purposes underlying the preliminary DEIS. As observed by Dave Densmore (USFWS) in an October 11, 2001 e-mail to Mike Robinson (OSM):

> Needless to say, this is not a shining example of our Department having "spoken with one voice," since I can find no evidence of anyone at FWS having reviewed or concurred with this approach. Regardless, based on my initial review, I find I cannot support this approach, if for no other reason than the record having amply demonstrated that it has been the absence of federal oversight, not its confounding influence, that has gotten us in the fix we are in now.

Ex. 9, p. 1.

As the "OSM Vision" reshaped the EIS, it became clear that OSM was demanding to do away with the SBZ rule, not consider any requirement for reforestation, avoid regulation of "terrestrial impacts" altogether, and consolidate permitting authority in the OSM, the COE, and state SMCRA agencies (the development agencies) while diminishing the role of EPA and FWS (the environmental protection agencies). Ex. 10, 11, 12, 13, 19, 20.[3] These objectives were

[3]The drafters of the DEIS recognized that the "OSM Vision" represented a dramatic departure with "key changes" from the PDEIS – that is, that the DEIS gutted the substantive environmental restrictions contained in the PDEIS in favor of purely "process" alternatives. For example, a January 16, 2003 memorandum regarding "[MTM/VF] DEIS Background Information for Communications Team," identified a series of "key issues that we anticipate will be raised when the DEIS is published for public review," including the following: "In response to a 2001 FOIA request, an earlier version of the DEIS. . . [was] released to the public... The current draft is different in several important respects, including the characterization of alternative actions being considered in the DEIS. (The earlier version focused on evaluation of alternative restrictions for limiting the size of valley fills as a way to limit environmental

1-13

embodied in what was called "Alternative B," which OSM had unilaterally[4] designated as the "preferred alternative." Id. Alternative B contained the process changes necessary to "streamline" the permitting process and consolidate authority in the development agencies, while setting no substantive limits on fill size, location, or impacts. Ex. 24, p. IV-1. EPA's William Hoffman summarized:

> ...OSM seems to be understating the "environmental criteria" aspects of the Section 404(b)(1) guidelines that must be satisfied before a decision to issue a permit can be made. OSM seems to be focusing solely on procedural aspects, which, if satisfied, will always lead to permit issuance ... even if the [environmental] impacts continue to be significant. If OSM focuses solely on incorporating the procedural aspects of the Section 404(b)(1) guidelines without including the "environmental criteria," the Section 404/SMCRA merger will be incomplete. The reason this is troubling to me is a statement made ... by an OSM attorney which suggested that ... [a] permit will not be denied based upon environmental effects... We must make sure that the SMCRA rule changes incorporate performance standards that look at both process and environmental effects (material damage in OSM lingo) if the one stop permitting process is to work.

2/13/02 Hoffman e-mail, Ex. 15 (emphasis added and removed). Mr. Hoffman further explained: 1-13

> OSM has been pushing hard to avoid requiring reforestation and PMLU controls, and to create a one-stop permitting process for mining with the State SMCRA agency as the regulatory agency for CWA 402 and 404 permitting... They [OSM] are going to propose rule changes at the same time the EIS goes out that would incorporate 404(b)(1) analyses into SMCRA regs and which would modify the stream buffer rule to permit fills under this "enhanced" State review process. As such, they are pushing for the selection of Alternative B in the EIS as the preferred alternative (fills would not be restricted to any particular watershed size or segment - but decisions would be made case-by-case under an improved regulatory scheme). Until the administration changed, we had agreed not to select any alterative as preferred, and wait to see how the public reacted to the different options. That's all changed now under the current OSM regime.

2/27/02 Hoffman e-mail, Ex. 17 (emphasis added).

> The "OSM Vision" is, in effect, a blatant attempt by political appointees in the Interior

impacts. The current version is focusing on alternative 'programmatic' improvements under CWA and SMCRA to ensure more effective environmental protection. Why were these key changes made?" Ex. 62, p. 2 (emphasis added).

[4]An EPA official stated: "This came right out of the blue last night. There has been absolutely no agency coordination (to my knowledge), and it flys [sic] in the face of all of our previous agreements not to designate a preferred alternative." Ex. 10.

Department to unilaterally rewrite the Settlement Agreement without the consent of the parties to that litigation.[5] As a plaintiff in Bragg, the Conservancy never agreed to OSM's "Vision." Instead, it agreed to the plain language in the Agreement. That "Vision" has become the driving force in the DEIS process, in place of the Settlement Agreement.

D. Shortly After June 2002, Senior Agency Executives Overruled the DEIS Steering Committee and Directed Adoption of a Revised Alternative Framework that Eliminated Any Restrictions on Valley Fills and Substituted Only Process Alternatives

EPA continued to argue in April, 2002 that the SBZ rule should be strengthened rather than eviscerated, and that a NWP 21 minimum impact threshold should be established, particularly within "Alternative B" since that alternative relied on a "project-by-project" review. Ex. 23.[6] The draft of the EIS that existed in April, 2002, while setting forth "Alternative B" as the "preferred alternative," still contained Alternatives C and D, which did contemplate substantive restrictions on fill size and placement. Ex. 24.

Mr. Griles participated in a meeting on April 29, 2002 about the EIS. Ex. 75. On May 22, 2002, the key agency officials working on the DEIS had a conference call with Mr. Griles to receive further directions on the content of that document. 5/16/02 Robinson e-mail, Ex. 25 ("Inasmuch as our principals may be meeting next Wednesday at the Deputy Secretary of Interior's office..."); 5/17/02 Robinson e-mail, Ex. 26 ("I received word ... from Deputy Secretary Griles' office that the principals' meeting next Wednesday will be by a conference call... [T]hey said that Holly Hopkins, Steve Griles' assistant will be contacting WVDEP and the other agencies with the information."); 6/14/02 Robinson e-mail, Ex. 33, Proposed Agenda, p. 10 ("The draft letter from Mr. Griles (DOI) to the Principals of the Steering Committee focuses on the issue of whether or not the DEIS should identify a preferred alternative, and recommends that 'at a minimum, this requires identification of a preferred alternative.'"). On the day of the May 22, 2002 conference call to discuss the DEIS, Mr. Griles received a fax from Assistant Attorney General John Cruden that focused specifically on the text of the 1998 settlement agreement regarding that document. Ex. 27, 28. The clear implication of this fax is that Mr. Griles was

1-13

[5]OSM has suggested that "[n]o political appointees or coal industry representatives participated [in re-writing the EIS]," (6/2/03 Robinson e-mail, Ex. 73, Attachment, p. 1), and that "Mr. Griles was briefed early in 2001 on the status of the EIS by OSM career staff... [but] [o]ther than receiving routine briefing papers prepared by OSM for the Department, Mr. Griles has not been involved in finalizing the document." Id. at 2. Any suggestion that Mr. Griles was not directly involved in the re-writing of the DEIS is at best inaccurate and at worst disingenuous.

[6]*See also* Ex. 29, Attachment ("EPA Issues - MTM/VF EIS"), in which EPA advocated a minimum impact threshold for application of NWP 21, and "actions to ensure" that reforestation occurs after mining is completed.

worried that the new direction of the DEIS may violate that agreement.

At a June 18, 2002 meeting, Steering Committee members reconsidered the alternative framework. Ex. 33, Proposed Agenda. EPA and the U.S. Fish and Wildlife Service (FWS) members of the Steering Committee took the position that the DEIS must consider alternatives to reduce environmental impacts. Id. at 8. They believed that "the new framework does not meet the NEPA requirements by providing a contrasting choices [sic] among several clear and distinct alternatives." Id. at 2. As a result of this meeting, the Steering Committee changed the alternative framework, but still recommended inclusion of an alternative that "would represent the suite of actions that would result in the most environmentally-protective alternative (i.e., restricting fills to the ephemeral zone...)." Id. at 11. The Steering Committee approved that recommendation. 6/19/02 Hoffman e-mail, Ex. 34. These changes were incorporated into a new alternatives matrix table. 6/26/02 Robinson e-mail, Ex. 35.

However, shortly thereafter, the Steering Committee's decision was overruled by the DEIS Executive Committee. Unnamed higher-level agency "executives instructed the SC to attempt to construct the alternatives for the EIS in a framework based largely on coordinated decision making for SMCRA and CWA--with no alternative restricting fills." Ex. 41, 9/23/02 Agenda, p. 1. Minutes of a July 14, 2002 Executive Committee meeting show that a new three-alternative approach was adopted. 8/15/02 email, Ex. 38, Attachment: Executive Committee Discussion. As a result, the prior alternatives restricting valley fills were stripped from the DEIS. Instead, the new alternative framework considered only process alternatives.

1-13

E. The Revised Alternative Framework Violates the Settlement Agreement

In a devastating internal critique, the FWS explained why the revised alternative framework violates the Settlement Agreement:

> The Fish and Wildlife Service has reviewed the September 20 draft of Chapter IV for the MTM/VF EIS. We previously proposed a four-alternative scenario that included consideration (not selection) of at least one alternative to restrict, or otherwise constrain, most valley fills to ephemeral stream reaches by employing the significant degradation or advance identification (ADID) provisions of the 404(b)(1) Guidelines. **Our intent was to provide for consideration of at least one alternative that "developed agency policies, guidance, and coordinated decision-making processes" and minimized the impacts of mountaintop mining and valley filling on waters of the U.S. and fish and wildlife resources; a two-part goal established by the settlement agreement that we believe the three-alternative approach failed to accomplish.** Our proposed approach was subsequently voted down within the Executive Committee in part because a decision appears to have been made that even relatively minor modifications of current regulatory practices are now considered to be outside the scope of the EIS process. The current three-alternative framework was adopted, but incorporated only a very limited ADID concept that does not meet our objectives. The September 20 draft retains the

deficiencies contained in the previous three-alternative framework, and the full draft of Chapter IV confirms our concerns. Therefore, we continue to object to the use of this approach. However, since the agencies are proceeding based on adoption of this approach, we do not believe that elevating this issue for higher level review would be helpful or productive. The following general comments are intended to provide you only with our sense of how problematic the proposed alternatives framework has become.

Now that the basic concept has been more fully elaborated in the September 20 write-up, **it is painfully obvious to us that there are no differences between the three action alternatives that can be analyzed in a NEPA context**. Table IV-2 (Comparison of Alternatives) underscores this fundamental shortcoming: Each of the three action alternatives offers only meager environmental benefits (thus a "two-star rating," as with a budget hotel or B movie), and there is no difference between them -- even in their degree of meagerness. The relative economic effects of these alternatives are similarly indistinguishable. The reader is left wondering what genuine actions, if any, the agencies are actually proposing.

Table IV-1 states that the alternatives would "*minimize*" the adverse effects of mountaintop mining and valley fill construction; the "analysis of alternatives" section states that "all three alternatives will result in greater environmental protection that will fulfill the agencies EIS objectives." As we have stated repeatedly, **it is the Service's position that the three "action" alternatives, as currently written, cannot be interpreted as ensuring any improved environmental protection, as stipulated in the settlement agreement, let alone protection that can be quantified or even estimated in advance for purposes of a NEPA analysis.** Without providing clear indications of how the Corps would evaluate projects and reach decisions through either the nationwide permit or individual permit processes, and how the SMCRA agency would make its decisions under Alternative 3, the public will not be able to deduce whether impacts to waters under any of these alternatives would be any different than the no action alternative. Furthermore, the results of implementing individual action items whose "actions" do not produce an outcome ("will continue to evaluate," "will work with the states to establish," "will continue to assess," "will continue to refine"), and of developing "Best Management Practices" whose use will be voluntary, are not likely to effect quantifiable, or even recognizable, improvements in environmental protection.

As we have already discussed *ad nauseum*, NEPA regulations describe the Alternatives section as "the heart of the environmental impact statement" which, in combination with the Affected Environment and Environmental Consequences sections, should "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." Even after considering the necessarily broad, programmatic nature of this document, **we have clearly failed to meet these standards.**

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> The EIS technical studies carried out by the agencies -- at considerable taxpayer expense -- have documented adverse impacts to aquatic and terrestrial ecosystems, yet the proposed alternatives presented offer no substantive means of addressing these impacts. **The alternatives and actions, as currently written, belie four years of work and the accumulated evidence of environmental harm, and would substitute permit process tinkering for meaningful and measurable change.** Publication of a draft EIS with this approach, especially when the public has seen earlier drafts, will further damage the credibility of the agencies involved.

9/30/02 Densmore e-mail, Ex. 42, Attachment: FWS Comments (emphasis added). EPA's Steering Committee member made similar criticisms of this new alternative framework, stating that "[i]t will not be clear to the public that any concrete steps are being proposed among the alternatives that directly address the environmental impacts." 10/4/02 Forren email, Ex. 43, para. 3. The Steering Committee agreed that "additional efforts to better distinguish between the alternatives" were needed. 10/22/02 Peck email, Ex. 44, Discussion Summary, p. 2. Those efforts were minimal, because a week before the DEIS was issued, an EPA briefing statement anticipated that a major issue raised by the public would be: "Process v. Environmental Protection: Where's the meat? What is being proposed that will improve environmental protection? What proposals will place limits on MTM/VF?" 5/21/03 Forren e-mail, Ex. 72, Briefing Outline.

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F. The Narrow Focus and Purpose of the DEIS Eviscerates Its Utility as a Guide for Future Decisions on How to Minimize Environmental Impacts

The narrow focus of the DEIS eviscerates its utility for resolving the MTM/VF controversy, as envisioned by the Settlement Agreement. The Corps itself stated that:

> The use of this document to Army and the Corps, if it does not include evaluations of all of the environmental impacts of Mountaintop Mining/Valley Fills, is minimal. We are proceeding with developing consistency within our agency on 1) waters of the U.S. jurisdictional extent, 2) a stream assessment protocol, 3) mitigation requirements and 4) minimal and cumulative impacts thresholds. Unless this document can serve as an umbrella document that can be tiered off of under NEPA, it does not serve a function for our agency.

Ex. 33, June 18, 2002 Proposed Agenda, p. 10. FWS also criticized the DEIS for its failure to articulate any substantive environmental protections:

> To belabor a point I know you're all sick of hearing, the "Why" in this case is supposed to be "to minimize, to the maximum extent practicable, the adverse environmental effects to waters of the United States and to fish and wildlife resources affected by mountaintop mining operations, and to environmental resources that could be affected by the size and location of excess spoil disposal sites in valley fills." In the case of the alternatives

framework that we're working with, "Why?" is instead going to be the public's response when they see that, to accomplish the EIS goal, **all we've proposed is alternative locations to house the rubber stamp that issues the permits**. Why on earth would we even prepare an EIS on such a non-event as tinkering with the permit issuance process, UNLESS we also fully develop and provide the details on HOW each one of the alternatives is really going to minimize environmental impacts? ...
Mike [Robinson (OSM)] said we don't need to go into details because it's a PROGRAMMATIC EIS... [W]here is it written that programmatic EIS's should offer only vague alternatives ...? Again, it seems that hiding behind the "programmatic" veil that we as agencies have unilaterally chosen and defined, really **violates the spirit of the settlement agreement**.

10/30/02 Tibbott e-mail, Ex. 45 (emphasis added).

As it now stands, the DEIS is simply an analysis of which agency takes the lead role in making the decisions. There is no guidance on how those decisions should be made. The unresolved decisions include what streams should be protected, how many streams should be protected, how the buffer zone rule should be applied, how much forest should be preserved, and how mitigation requirements should be applied. The agencies have not addressed any of these issues in the DEIS or in any other NEPA document. Nor have they explained whether the different alternatives would reach different conclusions about these issues. As a result, the DEIS is useless as a means of guiding future decisions on minimizing environmental impacts, and all of these issues will have to be addressed in additional EISs in the future.

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In sum, early drafts of the DEIS considered alternatives that were designed to minimize environmental impacts, as the Settlement Agreement required. OSM then substituted its own "vision" of one-stop permitting that unilaterally amended the Settlement Agreement. To carry out that unilateral amendment, the DEIS substitutes purely process alternatives that eviscerate the utility of the document in deciding how to minimize environmental impacts. Consequently, the DEIS violates the Settlement Agreement.

II. In Addition to Violating the Settlement Agreement, the DEIS Violates NEPA in Numerous Respects.

A. The DEIS Violates NEPA Because It Does Not Contain a Reasonable Range of Alternatives; All of the Alternatives Are "Process Alternatives" Without Any Substantive Differences.

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The three "action alternatives" considered in the DEIS do not represent a legally sufficient range of alternatives because they are merely "process alternatives" without any substantive differences between them, or any substantive difference from the "no action alternative." That is, the three "action alternatives" contemplate merely reshuffling the procedural responsibilities between the various agencies, and all three have the same or very

similar environmental impacts. None of the alternatives consider substantive restrictions or changes from the status quo.

The DEIS directly states that "[a]ll alternatives ... are based on process differences and not directly on measures that restrict the area of mining." DEIS IV.G-3 (emphasis added). The DEIS further admits that "[t]he environmental benefits of the three action alternatives are very similar," (DEIS II.B-13), and that "[t]he regulatory responsibilities ... are common to all the alternatives. However, the lead agency for each responsibility under the action could vary under each alternative." DEIS II.C-25. The DEIS further explains: "This programmatic EIS is necessarily broad given its purpose of addressing policies, guidance, and coordinated agency decision-making processes... The proposed action alternatives are largely administrative and as a result, accurately projecting their environmental consequences is difficult." DEIS IV.A-1. That the DEIS relies upon a fundamental misconception that it need not consider substantive environmental restrictions is evident also in the agenda for an Executive and Steering Committee meeting of November 21, 2002, which states:

> -Lack of environmental contrast; *is a fill restriction component needed in Alternative 1 to provided [sic] most environmentally-protective alternative? ...*
> -OFA states that NEPA compliance not satisfied; alternatives need not be limited to existing statutory authority — *Should a "no mining" or other restrictive alternative be included?*;
> - Counter: current contrast is "administrative" and similar environmental consequences is ok for programmatic DEIS and consistent with 1999 Notice of Intent and 1998 settlement agreement.

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11/18/02 Hodgkiss e-mail, Ex. 52, Attachment (underlining added). As argued throughout thes comments, a mere "administrative contrast" without distinguishable environmental restrictions or consequences between the alternatives is **not** consistent with the 1999 Notice of intent, the Bragg settlement agreement, or NEPA requirements to consider a reasonable range of alternatives.

Members of the Executive and Steering Committees criticized the DEIS for this same reason. FWS stated that it "is painfully obvious to us that there are no differences between the three action alternatives that can be analyzed in a NEPA context." Ex. 42, FWS Comments (emphasis added). The FWS further commented that "all we've proposed is alternative locations to house the rubber stamp that issues the permits." 10/30/02 Tibbott e-mail, Ex. 45. EPA's John Forren stated that: "On its face, the set of alternatives studied in detail in this DEIS do not represent the full range of alternatives . . ." 10/4/02 Forren email, Ex. 43. "[T]he principal distinction between the three proposed alternatives is which agency will take the lead role..." Id., Detailed Comments, para. 4. **"A question that will surely be posed by some in the public is 'They did an EIS to determine which federal agency should take the lead role?'"** Id. (emphasis added). Similarly, EPA's Wheeling Office commented:

The body of the report has excellent scientific information on the environmental impacts

> of MTM/VF mining. Unfortunately, it appears that information was not used in developing the Alternatives. It is not clear why Alternative 2 is the preferred alternative when the only major difference among the three alternatives seems to be which agency leads the permit process. The summary of the alternatives ... states that cross-program actions minimizing adverse effects of mountaintop mining and valley fill construction on terrestrial resources and the public **are identical in Alternatives 1, 2 and 3**.

Ex. 55, Attachment: Comments, p. 1 (emphasis in original); *see also*, 12/29/02 George email, Ex. 56 (the DEIS' "science findings are not reflected in [its] conclusions/recommendations"). EPA's Greg Peck recommended consideration of a 50% restriction on first order streams in second order watersheds because it would "address our goal of sharply defining the differences among the alternatives and to address cumulative impacts, which he feels is lacking among the alternatives now." 11/15/02 Forren email, Ex. 51. FWS' Tibbott proposed applying the alternatives to a hypothetical mine project to understand what the consequences of each alternative were, but that proposal was rejected. 11/1/02 Robinson email, Ex. 46.

The CEQ's NEPA regulations provide that the Record of Decision on an EIS must "[i]dentify all alternatives considered by the agency in reaching its decision, specifying the alternative or alternatives which were considered to be environmentally preferable." 40 C.F.R. § 1505.2(b) (emphasis added). OSM has explained: "These actions (e.g., what may specifically be intended by the agencies in a record of decision following the final EIS – not some indefinite 'future' possible actions) will dictate the alternatives..." 6/10/02 Robinson e-mail, Ex. 29, p. 2. Any record of decision regarding MTM/VF operations in Appalachia will be unable to comply with this regulation because the DEIS does not identify or *consider* any alternative which is distinguishable from any other alternative in environmental consequences.

The court in Simmons v. United States Army Corps of Eng'rs, 120 F.3d 664, 666 (7th Cir.1997), stated the rule that "[t]he broader the purpose, the wider the range of alternatives." Despite the DEIS's admission that "[t]his programmatic EIS is necessarily broad," (DEIS IV.A-1), however, the range of alternatives considered in the DEIS is quite narrow, containing no analysis of how stream loss will differ under the three alternatives nor any analysis of how much stream loss will be avoided under any particular alternative. DEIS IV.B-1, *et seq.* Instead, the DEIS merely makes the conclusory statement that "SMCRA and CWA program improvements common to the action alternatives ... will serve to reduce future direct stream loss," (DEIS IV.B-3 (emphasis added)), and admits that "[t]he indirect impacts from MTM/VF will continue regardless of alternative selected by decision makers." DEIS IV.B-5 (emphasis added). The DEIS fails to satisfy the NEPA requirement to consider an adequate range of alternatives because the DEIS does not consider any substantive restrictions, considering only rearrangements of existing procedural responsibilities between the relevant agencies.

NEPA requires an EIS to "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public," and to "rigorously explore and

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objectively evaluate all reasonable alternatives." 40 C.F.R. § 1502.14 (emphasis added). In Friends of Southeast's Future v. Morrison, 153 F.3d 1059 (9th Cir. 1998), the court summarized:

> An EIS must describe and analyze alternatives to the proposed action. *See* Alaska Wilderness Recreation & Tourism Ass'n v. Morrison, 67 F.3d 723, 729 (9th Cir.1995). Indeed, the alternatives analysis section is the "heart of the environmental impact statement." 40 C.F.R. § 1502.14. The agency must look at every reasonable alternative within the range dictated by the nature and scope of the proposal. *See* Idaho Conservation League, 956 F.2d at 1520. **The existence of reasonable but unexamined alternatives renders an EIS inadequate**. *See* Alaska Wilderness Recreation & Tourism Ass'n, 67 F.3d at 729.

Id. at 1065 (emphasis added). In Simmons v. U.S. Army Corps. of Engineers, 120 F.3d 664 (7th Cir. 1997), where the plaintiffs opposed a plan to build a water reservoir, the court stated:

> As a matter of logic, ... [a certain alternative] is not absurd – which it must be to justify the Corps' failure to examine the idea at all... "'The existence of a viable but unexamined alternative renders an environmental impact statement inadequate.'" (citation omitted)... If NEPA mandates anything, it mandates this: a federal agency cannot ram through a project before first weighing the pros and cons of the alternatives. In this case, the officials of the Army Corps of Engineers executed an end-run around NEPA's core requirement. By focusing on the single-source idea, the Corps never looked at an entire category of reasonable alternatives and thereby ruined its environmental impact statement.

Id. at 669-70 (emphasis added). *See also*, State of Cal. v. Block, 690 F.2d 753, 767 (9th Cir. 1982) (enjoining release by the U.S. Forest Service of public lands to multiple use management because the programmatic EIS prepared by the agency, which dealt with management category designations for 62 million acres of National Forest Service land, did not consider any alternative which allocated more than one-third of the land to "wilderness" designation, and the agency's selection of alternatives dictated an "end result" in which non-wilderness designations substantially exceeded wilderness designations, despite the fact that all of the land met the criteria for wilderness designation).

In contrast to the deficient EIS at issue in Simmons, the court in Northern Alaska Environmental Center v. Lujan, 961 F.2d 886 (9th Cir. 1992), found the EIS prepared by the U.S. Park Service for mining operations in the Yukon-Charley Rivers National Preserve ("Yukon") to be adequate under NEPA. That EIS, in contrast to the MTM/VF DEIS, *does* contain different alternatives with environmentally distinguishable substantive restrictions and consequences. For example, the Yukon EIS uses "Resource Protection Goals" (RPGs) to quantify stream loss due to future mining under different alternatives. Ex. 1, p. 149.

The three "action alternatives" in the MTM/VF DEIS are purely process alternatives and

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provide no meaningful basis for analyzing or reducing environmental impacts. By failing to consider reasonable alternatives that would restrict the size, scope, and number of valley fills, the DEIS fails to consider a reasonable range of alternatives, as NEPA requires.

B. The DEIS Violates NEPA Because It Adopts OSM's "Vision" and Defines the DEIS's Purpose and Scope in an Unreasonably Narrow Manner.

The DEIS further violates NEPA in that it defines the purposes of its action to be so unreasonably narrow that only "process alternatives" can satisfy it, and therefore illegally rejects a broader range of *substantive* alternatives without analysis of their relative impacts. As we have shown, OSM redefined the purpose of the EIS from minimizing environmental impacts to streamlining permitting. The DEIS states that "[t]he proposed action alternatives are largely administrative and as a result, accurately projecting their environmental consequences is difficult." DEIS IV.A-1. The DEIS admits that "[a]ll alternatives ... are based on process differences and not directly on measures that restrict the area of mining." DEIS IV.G-3 (emphasis added). Although the DEIS states that "[o]ne of the principal goals of this EIS is to explore ways to minimize the adverse impacts on streams from [MTM/VF] construction," (DEIS II.C-30), the narrow "process" purposes of the DEIS only allow it to "focus[] on the existing regulatory controls and alternatives to these controls that have a bearing on the direct loss of streams..." (DEIS II.C-30 to C-31), and force the DEIS to eliminate from consideration any direct restrictions on stream loss.

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The CEQ's NEPA regulations warn that a NEPA document is not to be used to justify a decision already made. 40 C.F.R. § 1502.2(g). Thus, "an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative ... would accomplish the goals of the agency's action, and the EIS would become a foreordained formality." Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 196 (D.C. Cir. 1991), *cert. denied*, 502 U.S. 994 (1991). *See also*, Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 812-14 (9th Cir. 1999).

In Simmons, 120 F.3d at 666, the court explained:

> When a federal agency prepares an [EIS], it must consider "all reasonable alternatives" in depth. 40 C.F.R. § 1502.14. No decision is more important than delimiting what these "reasonable alternatives" are. That choice, and the ensuing analysis, forms "the heart of the environmental impact statement." 40 C.F.R. § 1502.14. To make that decision, the first thing an agency must define is the project's purpose. *See* Citizens Against Burlington, Inc. v. Busey, 938 F.2d 190, 195-96 (D.C.Cir.1991). The broader the purpose, the wider the range of alternatives; and vice versa. The "purpose" of a project is a slippery concept, susceptible of no hard-and-fast definition. One obvious way for an agency to slip past the strictures of NEPA is to contrive a purpose so slender as to define competing "reasonable alternatives" out of consideration (and even out of existence). The federal courts cannot condone an agency's frustration of Congressional will. If the agency constricts the definition of the project's purpose and thereby excludes what truly are reasonable alternatives, the EIS cannot fulfill its role. Nor can the agency satisfy the Act. 42 U.S.C. § 4332(2)(E). [emphasis added]

In Davis v. Mineta, 302 F.3d 1104 (10th Cir. 2002), the plaintiffs sought to enjoin a highway project, including construction of a new bridge over the Jordan River in Utah, arguing that the defendants had violated NEPA by failing to consider reasonable alternatives. Citing, *inter alia*, Simmons, the Davis court held:

> While it is true that defendants could reject alternatives that did not meet the purpose and need of the project, ... they could not define the project so narrowly that it foreclosed a reasonable consideration of alternatives... Further, if the Project did narrowly express its purposes and needs as requiring a new crossing across the Jordan River at 11400 South, we would conclude that such a narrow definition of Project needs would violate NEPA given the more general overarching objective of improving traffic flow in the area.

302 F.3d at 1119 (citations omitted) (emphasis added).

Similarly, here, by focusing on the "OSM Vision" to "[s]treamline the regulation of valley fills by creating a 'one-stop' permitting authority to satisfy all pertinent statutory requirements" (Ex. 9), and eliminating an entire category (*i.e.*, substantive restrictions) of reasonable alternatives, the DEIS violates NEPA. *See, e.g.*, Simmons, 120 F.3d at 670 ("By focusing on the single-source idea, the Corps never looked at an entire category of reasonable alternatives and thereby ruined its environmental impact statement."). *See also*, Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d 1208, 1215 n.6 (9th Cir. 1998) (denouncing "[e]xpediency and prejudice in favor of logging over NEPA compliance and adequate concern for the environment.").

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C. The Alternatives Considered in the DEIS Violate NEPA and Defeat the Purpose of a Programmatic EIS Because They All Defer Analysis to Future "Case-by-Case" Decisions on Mining Activities, and Are Not Designed to Address and Reduce the Cumulative Impacts of Those Decisions.

The alternatives considered in the DEIS fail to meet the requirements of NEPA because they all rely on future "case-by-case" analyses. This precludes effective analysis of cumulative impacts, impermissibly segments mining activities into individual mines, and defeats the purpose of a programmatic EIS. That is, any alternative which would have evaluated cumulative or regional impacts was not carried forward in the DEIS, while all of the alternatives which are considered in the DEIS are based on "site-specific" analyses only. *See* DEIS II.D-1, regarding "Alternatives Considered But Not Carried Forward in this EIS," stating: "Other alternatives evaluated [but not carried forward] used cumulative impact measures to limit the size, location, and number of valley fills in a given cumulative impact area." Specifically, the DEIS explains: "A number of alternatives with restrictions ... based on cumulative impacts ... were considered

and dismissed... The existing data do not show that an across-the-board cumulative impact threshold could replace case-specific evaluations of all MTM/VF and other disturbances within a defined CIA [(cumulative impact area)]/watershed." DEIS II.D-6.

NEPA requires an agency to consider the cumulative impact of the proposed action together with "other past, present, and reasonably foreseeable future actions." 40 C.F.R. § 1508.7. The CEQ has further explained in its 1997 guidance document on cumulative impact analysis that: "If ... significant cumulative effects would occur as a result of a proposed action, the project proponent should avoid, minimize, or mitigate adverse effects by modifying or adding alternatives." CEQ, "Considering Cumulative Effects Under the National Environmental Policy Act," Ex. 2, p. 45 (emphasis added).

"Cumulative impacts can result from individually minor but collectively significant actions..." 40 C.F.R. § 1508.7. A NEPA document must "catalogue adequately the relevant past projects in the area." City of Carmel-by-the-Sea v. U.S. Dep't of Trans., 123 F.3d 1142, 1160 (9th Cir. 1997). It must also include a "useful analysis of the cumulative impacts of past, present, and future projects [which] requires a discussion of how [future] projects together with the proposed ... project will affect the environment." Id. The NEPA document must analyze the combined effects of the actions in sufficient detail to be "useful to the decision-maker in deciding whether, or how, to alter the program to lessen cumulative impacts." Id. Detail is therefore required in describing the cumulative effects of a proposed action together with other proposed actions. Neighbors of Cuddy Mountain v. USFS, 137 F.3d 1372, 1379 (9th Cir. 1998). A meaningful cumulative impact analysis "must identify (1) the area in which the effects of the proposed project will be felt; (2) the impacts that are expected in that area from the proposed project; (3) other actions--past, present, and proposed, and reasonably foreseeable--that have had or are expected to have impacts in the same area; (4) the impacts or expected impacts from these other actions; and (5) the overall impact that can be expected if the individual impacts are allowed to accumulate." Grand Canyon Trust v. FAA, 290 F.3d 339, 345 (D.C. Cir. 2002). *See also*, Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d 1208, 1214-1215 (9th Cir. 1998); City of Tenakee Springs v. Clough, 915 F.2d 1308, 1312 (9th Cir. 1990); Friends of the Earth v. U.S. Army Corps of Engineers, 109 F. Supp.2d 30, 41 (D.D.C. 2000).

Federal agencies cannot "evade their responsibilities" under NEPA by "artificially dividing a major federal action into smaller components, each without a 'significant' impact." Coalition on Sensible Transportation, Inc. v. Dole, 826 F.2d 60, 68 (D.C.Cir. 1987). That is, cumulative impacts analysis cannot be avoided by "segmenting" the project. NEPA requires "that an agency consider the effects of several related actions in a single EIS in appropriate circumstances. 'Not to require this would permit dividing a project into multiple 'actions,' each of which individually has an insignificant environmental impact, but which collectively have a substantial impact.'" Churchill County v. Norton, 276 F.3d 1060, 1076 (9th Cir. 2001), *quoting* Thomas v. Peterson, 753 F.2d 754, 758 (9th Cir. 1985). Valley fills fit the classic paradigm of cumulatively significant actions, where "[d]ozens of small operations of a single type incrementally contribute to deterioration of water quality in a common drainage stream." Sierra

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Club v. Penfold, 664 F.Supp. 1299, 1303 (D.Alas. 1987), *aff'd.*, 857 F.2d 1307, 1320-22 (9th Cir. 1988). "While the operations are not functionally or economically interdependent, their impacts are interdependent and require common analysis." Id. at 1304. In Penfold, as here, a federal agency had granted numerous permits for mining in a watershed without considering their cumulatively significant effects. The court held that an EIS was required. Id. at 1305. Other courts have similarly held that the successive dumping of material into the same area requires analysis of cumulative impacts in an EIS. NRDC v. Callaway, 524 F.2d 79, 87-89 (2nd Cir. 1975); Manatee County v. Gorsuch, 554 F.Supp. 778, 793 (M.D. Fla. 1982); National Wildlife Federation v. Benn, 491 F.Supp. 1234, 1248-52 (S.D.N.Y. 1980).

The three action alternatives considered in the DEIS fail to meet the requirements of NEPA because they all rely on "case-by-case" analyses and therefore preclude effective analysis of cumulative impacts.[7] Any alternative which *would* have evaluated cumulative or regional impacts was not carried forward in the DEIS, while all of the alternatives which are considered in the DEIS are based on "site-specific" analyses only. *See* DEIS II.D-1, 6. Each of the alternatives considered in the DEIS, therefore, would impermissibly segment mining activities into individual mines covering a small area, even though it is highly likely that mining will continue over a much wider geographic area until coal reserves are exhausted.[8] The DEIS thus defeats the purpose of a programmatic EIS – consideration of alternatives for reducing cumulative impacts – by only considering alternatives that defy cumulative impacts analysis and rely entirely on case-by-case analyses.

Cumulative impact analysis is precisely the function of a programmatic EIS. "The CEQ regulations require that so-called 'connected' or 'cumulative' actions be considered in a single EIS. 40 C.F.R. § 1508.25(a)(1), (a)(2); ... 'Where there are large-scale plans for regional development, NEPA requires both a programmatic and a site-specific EIS...'" Churchill County, 276 F.3d at 1076 (citation omitted; emphasis added). The Second Circuit has stated:

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[7]This NEPA "cumulative impacts" violation is distinct from the CWA "minimal cumulative impacts threshold" violation discussed below in which the "case-by-case" approach advocated in the DEIS for all alternatives is inherently inconsistent with the requirement in Section 404(e) of the CWA that activities permitted under NWPs cannot have more than minimal cumulative adverse effects on the environment.

[8]*See, e.g.*, DEIS IV.I-1 ("[T]he demand for central Appalachian coal will likely increase at some point in the future."); DEIS ES-2 ("The U.S. Department of Energy (DOE) estimated in 1998 that 28.5 billion tons of high quality coal ... remain in the study area. DOE reported about 280 million tons of coal were extracted by surface and underground mining from the study area in 1998. Coal produced from the study area continues to provide an important part of the energy needs of the nation. Regionally, coal mining is a key component of the economy[,] providing jobs and tax revenue. Almost all of the electricity generated in the area comes from coal-fired power plants... [C]oal production remains high...").

> The purposes of NEPA are frustrated when consideration of alternatives and collateral effects is unreasonably constricted. This can result if proposed agency actions are evaluated in artificial isolation from one another. Accordingly, an agency is required to consider the full implications of each decision in light of other potential developments in the area, and to prepare a comprehensive impact statement if several projects are significantly interdependent.

Greene County Planning Bd. v. Federal Power Comm'n, 559 F.2d 1227, 1232 (2d Cir. 1976), *cert. denied*, 434 U.S. 1086 (1978) (emphasis added). In Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Com'n., 481 F.2d 1079, 1086-1088 (D.C. Cir. 1973), the court quoted from a 1972 CEQ memorandum on this issue and observed:

> [T]his section will focus on ... the [Commission's suggested] possibility of substituting an "environmental survey" for a NEPA statement... The Commission takes an unnecessarily crabbed approach to NEPA in assuming that the impact statement process was designed only for particular facilities rather than for analysis of the overall effects of broad agency programs. Indeed, quite the contrary is true.
>
> > "Individual actions that are related either geographically or as logical parts in a chain of contemplated actions may be more appropriately evaluated in a single, program statement. Such a statement also appears appropriate in connection with ... the development of a new program that contemplates a number of subsequent actions. ... [T]he program statement has a number of advantages. It provides an occasion for a more exhaustive consideration of effects and alternatives than would be practicable in a statement on an individual action. It ensures consideration of cumulative impacts that might be slighted in a case-by-case analysis."

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See also, Tex. Committee on Natural Resources v. Bergland, 433 F.Supp. 1235, 1252 (E.D.Tex. 1977), *rev'd on other grounds*, 573 F.2d 201 (5th Cir. 1978), *citing* the 1972 CEQ Memorandum for the proposition that "[t]he CEQ has ... issued guidelines stating the advantages of a programmatic EIS."[9] These "advantages of a programmatic EIS" were noted also by the court in Ass'n. of Pub. Agency Customers v. Bonneville Power, 126 F.3d 1158, 1184 (9th Cir. 1997), where the court observed: "In many ways a programmatic EIS is superior to a limited, contract-specific EIS because it examines an entire policy initiative rather than performing a piecemeal analysis within the structure of a single agency action." (emphasis added).

The court in National Wildlife Fed. v. Appalachian Reg. Com'n., 677 F.2d 883, 887-88

[9]"CEQ's interpretation of NEPA is entitled to deference. Andrus v. Sierra Club, 442 U.S. 347, 358 (1979). The same is true of an opinion by CEQ's general counsel. *See* Defenders of Wildlife v. Andrus, 627 F.2d 1238, 1246-47 (D.C.Cir.1980)." Seattle Audubon Soc. v. Lyons, 871 F. Supp. 1291, 1319 (W.D. Wash. 1994).

(D.C.Cir. 1981), explained at length the function and role of a "programmatic EIS:"

> Two distinct tiers of environmental review may be applicable to some "major Federal actions." Site-specific EISs constitute a second tier in the discussion and analysis of impacts on the environment. ... "The first tier EIS should focus on broad issues such as mode choice, general location and areawide air quality and land use implications of alternative transportation systems." A programmatic EIS reflects the broad environmental consequences attendant upon a wide-ranging federal program. The thesis underlying programmatic EISs is that a systematic program is likely to generate disparate yet related impacts. This relationship is expressed in terms of "cumulation" of impacts or "synergy" among impacts that are caused by or associated with various aspects of one big Federal action. Whereas the programmatic EIS looks ahead and assimilates "broad issues" relevant to one program design, the site-specific EIS addresses more particularized considerations arising once the overall program reaches the "second tier," or implementation stage of its development. In evaluating a comprehensive program design an agency administrator benefits from a programmatic EIS which indubitably "promote(s) better decisionmaking." ... The Supreme Court has held that the environmental consequences of proposed actions must all be considered together in a single, programmatic EIS when their impacts will have a compounded effect on a region. "Cumulative environmental impacts are, indeed, what require a comprehensive impact statement." In other words, if the "major Federal action" at issue consists of a number of related enterprises associated within a single program and planned together, then their joint effects should probably also be considered together. This proceeds from the requirement that the scope of the federal action be accurately characterized to ensure that an EIS of equivalent scope is prepared.

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(emphases added and removed). The court further explained, regarding "program segmentation:"

> Quite simply, "(s)egmentation of a large or cumulative project into smaller components in order to avoid designating the project a major federal action has been held to be unlawful." We assume this same proscription would apply if an agency sought to evade its NEPA responsibility to consider programmatic environmental impacts. The existence of a comprehensive program with cumulative environmental effects cannot be escaped by disingenuously describing it as only an amalgamation of unrelated smaller projects.

677 F.2d at 890 (citation and footnote omitted) (emphasis added).

Further, not only must cumulative "proposed action" impacts be considered together in a programmatic EIS, but so also must cumulative "foreseeable action" impacts. As explained in Texas Committee on Natural Resources v. Van Winkle, 197 F. Supp.2d 586, 617 (N.D.Tex. 2002): "[E]ven if a foreseeable, future action is not a proposed action such that it does not need to be analyzed and decided in the same EIS, the cumulative impacts of this foreseeable action nevertheless must be analyzed in the EIS." (citation omitted). Similarly, in Cady v. Morton, 527

F.2d 786, 795 (9th Cir. 1975), the court held that an EIS limited to studying the effects of a 770 acre 5-year plan for coal strip mining was inadequate, and that an EIS encompassing the entire 20-year project contemplated by coal leases approved by the Secretary of the Interior was required. The Cady court explained:

> While it is true that each mining plan prepared for tracts within the leased area is to a significant degree an independent project which requires a separate EIS with respect to each, it is no less true that the breadth and scope of the possible projects made possible by the Secretary's approval of the leases require the type of comprehensive study that NEPA mandates adequately to inform the Secretary of possible environmental consequences of his approval.

(emphasis added). *See also* Blue Mountains, 161 F.3d at 1215.

Finally, this programmatic DEIS cannot defer cumulative impacts analysis to future site-specific EISs, even if the cumulative impacts analysis necessitates some degree of "forecasting and speculation" at the programmatic level. In Kern v. U.S. Bureau of Land Management, 284 F.3d 1062 (9th Cir. 2002), plaintiffs challenged the adequacy of an EIS prepared by the BLM in connection with a resource management plan (RMP), under which site-specific timber sales would be governed. The BLM argued, *inter alia*, that detailed environmental analysis need not be undertaken by the EIS for the RMP because such analyses would be undertaken at the site-specific level. The court rejected this argument, holding:

> An agency may not avoid an obligation to analyze in an EIS environmental consequences that foreseeably arise from an RMP merely by saying that the consequences are unclear or will be analyzed later when an EA is prepared for a site-specific program proposed pursuant to the RMP. "[T]he purpose of an [EIS] is to evaluate the possibilities in light of current *and contemplated* plans and to produce an informed estimate of the environmental consequences.... Drafting an [EIS] necessarily involves some degree of forecasting." City of Davis v. Coleman, 521 F.2d 661, 676 (9th Cir.1975) (emphasis added). ... Once an agency has an obligation to prepare an EIS, the scope of its analysis of environmental consequences in that EIS must be appropriate to the action in question. NEPA is not designed to postpone analysis of an environmental consequence to the last possible moment. Rather, it is designed to require such analysis as soon as it can reasonably be done. *See* Save Our Ecosystems v. Clark, 747 F.2d 1240, 1246 n. 9 (9th Cir.1984) ("Reasonable forecasting and speculation is ... implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as 'crystal ball inquiry.'" *quoting* Scientists' Inst. for Pub. Info., Inc. v. Atomic Energy Comm'n, 481 F.2d 1079, 1092 (D.C.Cir.1973)). If it is reasonably possible to analyze the environmental consequences in an EIS for an RMP, the agency is required to perform that analysis.

284 F.3d at 1072 (emphasis added).

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In the present case, the alternatives considered in the DEIS fail to meet the requirements of NEPA because they all rely on "case-by-case" analyses, precluding effective analysis of cumulative impacts, impermissibly segmenting mining activities into individual mines, and defeating the purposes of a programmatic EIS. "[C]umulative impact analysis must be timely. It is not appropriate to defer consideration of cumulative impacts to a future date when meaningful consideration can be given now." Id. at 1075. *See also*, Defenders of Wildlife v. Ballard, 73 F. Supp.2d 1094, 1112-1114 (D. Ariz. 1999).[10]

The FWS similarly criticized the MTM/VF DEIS, stating:

> Mike [Robinson (OSM)] and I argued ... over the need to provide details on how the programs would evaluate permits under each of the alternatives. Mike said we don't need to go into details because it's a PROGRAMMATIC EIS... [W]here is it written that programmatic EIS's should offer only vague alternatives – especially a programmatic EIS that involved four years of studies that documented environmental impacts that need to be dealt with? Again, it seems that hiding behind the "programmatic" veil that we as agencies have unilaterally chosen and defined, really violates the spirit of the settlement agreement.

10/30/02 Tibbott e-mail, Ex. 45.[11]

[10]In Ballard, the court held:

> At a minimum, this Court must order the Defendants to take a 'hard look' at the cumulative impact of the NWP program, specifically NWPs 13, 14, and 26, and determine that the use of these permits in this region has no significant impact. 'NEPA requires consideration of the potential impact of an action before the action takes place.' Cuddy, 137 F.3d at 1380 (*citing* City of Tenakee Springs, 915 F.2d at 1313). It was not appropriate to defer the cumulative impact assessment to a future date. Id. Defendants were fully aware of NEPA's obligations, as evidenced by their Final Decision, yet they have done nothing since 1996 to comply with the law. This Court cannot condone further violation of NEPA which would result if it allows Defendants to continue authorizing projects with NWPs 13, 14, and 26, when the proper impact analysis has not been performed. As a matter of law, authorizations under the challenged NWPs violate NEPA mandates until Defendants conduct a regionally based, programmatic impact analysis.

73 F. Supp.2d at 1114 (emphasis added). Here, the DEIS does not consider any alternatives based on cumulative impacts. Consequently, the Corps cannot issue any NWPs until it does so.

[11]That the DEIS relies upon a fundamental misconception that it need not consider substantive environmental restrictions - but only reshuffling of "administrative" tasks - due to the

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D. None of the Three Alternatives Considered in the DEIS Should Be Adopted

All three of the alternatives considered in the DEIS are fatally flawed. They are purely process alternatives that should be discarded and replaced with alternatives that actually reduce the cumulative environmental impacts of mountaintop removal mining and valley fills.

Even if they could be adopted, there is no rational basis for choosing which of the three is the best alternative. First, the three alternatives are internally contradictory. Under Alternative 1, valley fills are presumed to have more than minimal adverse effects and need an individual 404 permit. DEIS II.B-3. Under Alternative 3, valley fills are presumed to have minimal effects and qualify for a NWP 21 authorization. Id. Under Alternative 2, valley fills may or may not have more than minimal adverse effects, depending on case-by-case determinations. Id. The DEIS does not explain why the effects of a valley fill, and the type of 404 permit used, should change depending on which alternative is selected. In reality, the impacts are fixed regardless of which alternative is selected.

Second, the DEIS never specifically explains why Alternative 2 is the preferred alternative and is better than the other two. It makes the general claim that it is "because of the improved efficiency, collaboration, division of labor, benefits to the public and applicants, and the recognition that some proposals will likely be suited for IPs, and others best processed as Nationwide Permit (NWP) 21." DEIS ES-5. These benefits are entirely procedural, and do not explain in any way why, or how, better procedures will lead to better decisions or better protection of the environment.

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Third, it is impossible for the public to discern from the DEIS what difference any of the

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"programmatic" nature of the EIS is evident also in the agenda for an Executive and Steering Committee meeting of November 21, 2002, which states:

> **Issues Raised During Preparation**:
> -Lack of environmental contrast; *is a fill restriction component needed in Alternative 1 to provided [sic] most environmentally-protective alternative?* ...
> -OFA states that NEPA compliance not satisfied; alternatives need not be limited to existing statutory authority — *Should a "no mining" or other restrictive alternative be included?*;
> - Counter: current contrast is "administrative" and similar environmental consequences is ok for programmatic DEIS and consistent with 1999 Notice of Intent and 1998 settlement agreement.

11/18/02 Hodgkiss e-mail, Ex. 52, Attachment (underlining added). A mere "administrative contrast" without distinguishable environmental restrictions or consequences between the alternatives is **not** consistent with the 1999 Notice of intent, the Bragg settlement agreement, or NEPA.

alternatives will make in terms of environmental impacts. On the contrary, the DEIS admits that the environmental benefits, if any, of the three alternatives are the same. *See, e.g.*, DEIS II.B-13, II.C-25, IV.A-1, IV.G-3.

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E. The DEIS Violates NEPA By Not Analyzing Alternatives to Restrict Valley Fills, Stream Loss, Deforestation, and Use of NWPs

NEPA requires that an EIS "[r]igorously explore and objectively evaluate all reasonable alternatives" to the federal action. 40 C.F.R. § 1502.14(a); Bob Marshall Alliance v. Hodel, 852 F.2d 1223 (9th Cir. 1988), *cert. denied*, 489 U.S. 1066 (1988). The purpose of this "rigorous" analysis is to "provid[e] a clear basis for choice among options by the decisionmaker and the public." 40 C.F.R. § 1502.14; *see also*, 42 U.S.C. § 4332(2)(E); 40 C.F.R. §§ 1507.2(d), 1508.9(b). The CEQ describes the alternatives requirement as the "heart" of the NEPA analysis. 40 C.F.R. § 1502.14. The CEQ has issued guidance explaining that: "If it is determined that significant cumulative effects would occur as a result of a proposed action, the project proponent should avoid, minimize, or mitigate adverse effects by modifying or adding alternatives." Ex. 2, p. 45 (emphasis added). As explained below in section II.G.1.b of these comments, the DEIS clearly demonstrates that the cumulative impacts of MTM/VF operations in Appalachia are significant. Reasonable alternatives that should have been considered are: restrictions on valley fill sizes, either individually or cumulatively; restrictions on deforestation, either individually or cumulatively; restrictions on stream loss, either individually or cumulatively; and individual and cumulative minimal impact thresholds for NWPs.[12]

1. Restrictions on Valley Fill Sizes Should Be Considered

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Restrictions on valley fill sizes, either individually or cumulatively, should have been considered because the studies contained in the DEIS demonstrate that while the cumulative environmental harm caused by past and future valley fills is enormous, the economic impact of valley fill size restrictions is tiny.

Regarding the correlation between valley fill size and environmental harm, the DEIS states that: "[t]he size, number, and location of valley fills correlate with direct loss of streams and riparian and terrestrial habitats," (DEIS II.C-45), and case studies demonstrate that "direct impacts to streams may be greatly lessened" by "reducing the ... size of the excess spoil fill." DEIS IV.I-9. In fact, a March 2002 EPA options paper states that a "con" to "[s]election of Alternative B (unrestricted watershed, project by project review)" is that it: "Will appear inconsistent with findings of tech studies, including economics, and with stated purpose of EIS to reduce impacts." Ex. 18, Attachment, p. 1. Conversely, the same options paper explains that "[s]election of Alternative C (Restricts fills to intermittent zone 250 acre watersheds)" is: "Most consistent with findings of tech studies." Id. The options paper further states that

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[12]Establishment of a minimal *cumulative* impact threshold does not preclude a finding that such threshold has *already* been exceeded, which has in fact occurred.

"[s]election of Alternative D (Restricts fills to ephemeral zone 75 acre watersheds)" has the "[l]east direct impact on the aquatic ecosystem." Id. at 2.

The record shows that OSM vetoed fill restrictions because they would reduce environmental impacts. The civilian head of the U.S. Army Corps of Engineers stated in a March 11, 2003 email that "OSM is very sensitive about the message that [valley fill] thresholds result in improved environmental quality. IF that were the case, then the real message is that [a] 200 [acre threshold] would be better, 100, better yet and 0 fills, best of all." March 11, 2003 email from George Dunlop to Chip Smith, Ex. 68, Attachment. "Instead, the focus needs to be on stream protocols and the relative quality for each stream." Id. The MTM/EIS Executive Committee admitted that this approach is counterintuitive: "Even without scientific data on the relationship of fill size to indirect impacts, it is intuitive to justify a minimal threshold based on the concept that 'smaller fills are better than larger fills' with respect to direct impacts on aquatic habitat buried by fills." Ex. 65, Agenda, p. 3.

The failure to consider fill restrictions also cannot be justified on economic grounds. The DEIS explains that "in most situations the restriction would change the price of coal to less than one dollar per ton," and that "[t]he price of electricity would continue to rise approximately 1 to 2 percent across the scenarios; the impacts due to restrictions will have little effect on price." DEIS App. G, p. 6 (summary of Phase II Economics study by Hill and Associates) (emphasis added). Even after adjusting the model inputs to be more favorable to the coal industry, the change in the price of coal rose to only two dollars a ton. Id. at 7. The DEIS also observes that "[t]he most restrictive scenario [limiting fills to 35-acre watersheds] would, under the worst condition, cause up to a 20 percent reduction in direct coal mining employment in the region." Id. at 6 (emphasis added). However, "[c]oal mining earnings within West Virginia are 5% of total state income (3% of employment); just over 1% of total earnings and employment in Kentucky, and less than 1% of employment and income in Virginia and Tennessee." DEIS IV.I-2.[13]

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Further, a major theme of the alternatives considered is that mitigation will reduce

[13]*See also*, 1/10/03 Robinson e-mail, Ex. 60, Attachment: MWCI Analysis, p. 8: "As stated in the H&A Final Report, '...it is evident that the electricity prices are quite insensitive to the MTM/VF restrictions, showing differences of only 1%-2%, or 3% at the maximum.' ... Consistent with the results obtained with coal tonnage and direct employment, the anticipated 1.15% increase in the base case from $0.01971/KW-Hr in 2002 to $0.02276/KW-Hr in 2010 overshadows price changes induced by potential valley fill restrictions..." (emphasis added). *See also*, "Mountaintop Mining / Valley Fill DEIS Background Information for Communications Team, January 16, 2003," Ex. 62, p. 2: "As part of the studies conducted in conjunction with the DEIS were studies to assess the economic impacts that would result from implementing actions considering limits on the size of valley fills. Information from the economic studies ... suggest that limits on the size of fills will have only minimal economic consequences on coal and electricity prices." (emphasis added).

environmental impacts, although the amount of impact reduction cannot be known because the mitigation is site-specific. *See, e.g.*, DEIS IV.I-2 - I-4. Direct valley fill restrictions would similarly reduce impacts by an unknown but sizable amount and are therefore a valid alternative that should have been considered. The DEIS states:

> It is reasonable to presume that required mitigation costs (i.e., to offset valley fills) will result in future MTM designs with reduced valley fill sizes. The economic studies in Appendix G evaluated absolute fill restrictions to specific watershed sizes... [The studies] provide a logical and parallel inference for potential general economic effects of fill minimization. That is, since some of the economic studies show that absolute fill restrictions increase mining costs due to additional material handling and use of different equipment, it can be inferred that minimizing fills will to some degree also affect mining costs.

DEIS IV.I-3. The DEIS further explains:

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> [M]itigation to replace and restore aquatic functions lost beneath valley fills can be a costly endeavor. Therefore, the cost of compensatory mitigation can serve as an incentive to minimize valley fills in aquatic habitats.

DEIS II.C-47 (emphasis added). In other words, fill restrictions are just a more stringent method of mitigation. (Or, conversely, mitigation costs are just a more clumsy way of achieving fill-size restrictions.) Indeed, direct fill restrictions appear to achieve the goal of reduced fill size (and therefore less stream, forest and habitat loss) with greater accuracy than does imposing mitigation costs with the secondary effect of making larger fills less economically attractive. Certainly, direct fill restrictions more effectively limit environmental impacts in light of the fact that technological factors often prohibit *actual* mitigation[14] and "result in greater consideration of in lieu fee arrangements." DEIS II.C-49. Therefore, direct fill restrictions should have been considered as feasible alternatives to mitigation and/or "in lieu fee arrangements."

2. Restrictions on Deforestation Should Be Considered

Restrictions on deforestation, either individually or cumulatively, should have been considered because, as explained in greater detail below in section G.1.b., MTM/VFs have already converted, and will continue to convert, huge portions of one of the most biologically diverse forest areas in the United States into grasslands. "When adding past, present and future

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[14]"Stream creation on filled area is very difficult in general due to the inability to capture sufficient groundwater flows necessary to provide a source." DEIS III.D-18. "To date, no drainage structures observed appear to have successfully developed into a functional headwater stream (Appendix D)." DEIS III.D-19. "In summary, to date functioning headwater streams have not been re-created on mined or filled areas as part of mine restoration or planned stream mitigation." DEIS III.D-20.

terrestrial disturbance, the study area estimated forest impact is 1,408,372 acres which equates to 11.5% of the study area." DEIS IV.C-1. Further, "[h]abitat changes will occur ... [involving] a shift from a forest dominated landscape to a fragmented landscape with considerably more mining lands and eventually grassland habitat," (DEIS App. I, p. 93), and this "change in these habitats could put a number of species in peril." DEIS App. I., p. v. For example, "forest loss in the West Virginia portion of the study area has the potential of directly impacting as many as 244 vertebrate wildlife species." DEIS App. I, p. 86. These alterations of the ecosystem are profound and permanent. "Results from this study support the thesis that fundamental changes to the terrestrial environment of the study area may occur from mountaintop mining." DEIS App. I, p. v (emphasis added). "Mountaintop mining and valley fill activities significantly affect the landscape mosaic... The result is an area drastically different from its pre-mining condition." DEIS App. I, p. 23 (emphasis added). Further,

> [R]e-establishing native hardwood forests on reclaimed mines is still experimental. We don't know what the long-term success will be. Even if hardwood forests can be re-established, it should be intuitively obvious that they'll be a drastically different ecosystem from pre-mining forests for generations, if not thousands of years...

6/26/01 Tibbott e-mail, Ex. 5, p. 1 (emphasis added).[15] *See also* DEIS IV.A-4 (reforestation "may take hundreds of years").

In the face of this serious and enduring environmental destruction, the DEIS does not consider any restrictions on deforestation. Instead, the alternatives considered in the DEIS include only meager attempts to "encourage" *re*forestation, although forestry post mining land use (PMLU) would remain purely voluntary under all of the alternatives, and actual reforestation could take hundreds of years, if it can be achieved at all. Currently, disincentives and barriers to reforestation are the norm. "[T]he use of grasses and legumes serves as the low cost, low-risk option for bond release. Even when the reclamation plan calls for the planting of trees, excessive compaction of the rooting medium, which severely reduces tree growth, is the norm." DEIS III.B-9. "The predominant PMLU has included a bias towards salvaging ... soil materials that provide favorable chemical conditions for the growth of grasses and legumes, but have a negative impact on forest regeneration." DEIS III.B-11.[16] Current soil practices prevent reforestation and

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[15] *See also*, DEIS IV.D-5: "[T]he permanent nature of filling would suggest that MTM/VF impacts to biotic interactions in headwater stream systems ... may constitute a[n] irreversible impact to this system in the study area." (emphasis added). *See also*, Ex. 6, p. 6: "Unless reclamation practices are changed drastically, it can be assumed that this forest to grassland conversion is, for all practical purposes, permanent. Even if reclamation practices are changed, we must still consider the recovery of a functional mesophytic forest ecosystem as a long-term ecological experiment with uncertain results." (emphasis added).

[16] *See also*, Ex. 6, p. 4 ("Current reclamation practices result in conditions that discourage the re-establishment of trees."); id., p. 5 ("The study found no evidence that native hardwood

violate OSM regulations, because the post-mining soil supports lower quality vegetation than did the existing pre-mining soil. 30 C.F.R. § 816.22. "Production of soils that will support commercial forestry as part of mountaintop mining requires selective overburden handling and replacement procedures on a scale that has never been carried out in Appalachia." DEIS III.B-15.

3. The Existing Alternatives in the DEIS Regarding Deforestation Are Inadequate and Ineffective

Despite this current lack of reforestation practices, the DEIS only considers one alternative–the compilation of a "Best Management Practices (BMP) manual" encouraging voluntary reforestation, and briefly ponders hypothetical legislation that might require reforestation. Regarding the "manual," the DEIS states: "A BMP manual emphasizing the latest cost-effective reforestation techniques could encourage forestry-related PMLUs." DEIS II.C-76. However, the DEIS admits that "the only difference between the No Action Alternative and the development and use of BMPs as part of Alternatives 1, 2, and 3 is that this action anticipates broader acceptance and use of the BMPs to improve reclamation to a forest land use." DEIS IV.C-8. Thus, the DEIS simply assumes that the "BMP manual" will effectively encourage reforestation, without any support for this assumption and without any requirement for forestry as a PMLU, and in the face of the acknowledged fact that reforestation is not currently practiced due to significant technological barriers and economic disincentives.[17] FWS's Tennessee office states that reforestation initiatives recently failed in Kentucky, and "we do not believe landowners or the mining industry will show significant support for anything more than is required." 1/02/03 Tibbott e-mail, Ex. 57, p. 1.

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Regarding the "legislation," the DEIS states: "*If* legislative authority is established by Congress or the states, then SMCRA regulatory authorities will require reclamation with trees as the post mining land use." DEIS II.C-83 (emphases added); *see also*, DEIS IV.C-8 ("...this action, if implemented, would have legislative authorities enact changes to SMCRA..."). This "action" is no action at all. The DEIS contains no specific analysis or discussion of the hypothetical "legislation" or who, precisely, would "have legislative authorities" enact it. Further, the DEIS contains no explanation of why a forestry PMLU could not be implemented under existing authority.[18]

forests, including their herbaceous understory component, will eventually recolonize large mountaintop sites using current reclamation methods.").

[17] In fact, even "flat land" PMLUs are not being completed. "This investigation found that many sites are not being developed as envisioned when PMLU variances are granted, and that the supply of flat land seems to outweigh the demand." Ex. 6, p. 4.

[18] *See, e.g.*, DEIS III.B-15: "[T]he current regulations (which have been in place since May 16, 1983) require that selected overburden substitutes for soil be 'equal to, or more suitable

The consideration of alternatives addressing deforestation in the DEIS is insufficient to meet the requirements of NEPA because the environmental consequences of past, present, and foreseeable future deforestation are profound and permanent, and "BMP manual" suggestions that technologically infeasible and economically unattractive reforestation be voluntarily undertaken are insufficient to address this serious environmental harm. Restrictions on deforestation, either individually or cumulatively, should have been considered as feasible alternatives.

4. Restrictions on Stream Loss Should Be Considered

Restrictions on stream loss, either individually or cumulatively, should be considered because significant stream loss has occurred and will continue to occur, and the purpose of the EIS should be to minimize impacts on streams. The DEIS finds that "[d]irect impacts to 1,208 miles of streams is estimated based on the last 10 years of ... data ... [and] an additional thousand miles of direct impacts could occur in the next ten years." DEIS App. I, pp. 66-67.[19] "When streams are filled or mined all biota living in the footprint of the fill or in the mined area are lost." DEIS III.D-2. In addition, "[t]he projected potential adverse impacts [to riparian habitats] in ... West Virginia ... is 7,591 acres, or 3.2%. Approximately 55% of ... [such] impacts occur in first and second order streams which are important habitats to many species of ... wildlife." DEIS App. I, p. vi. Further, the DEIS admits that "[v]alley fills are not 'water dependent,'" and that "if a valley fill is proposed in a special aquatic site, upland alternatives ... are presumed to exist..." DEIS II.C-33. Moreover, the DEIS acknowledges that "[o]ne of the principal goals of this EIS is to explore ways to minimize the adverse impacts on streams from [MTM/VF] construction." DEIS II.C-30 (emphasis added). In fact, FWS argued in August, 2002 in favor of including an alternative that restricted stream loss, explaining:

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The ... action proposed ... would identify intermittent and perennial stream reaches as

for sustaining vegetation than the existing topsoil, and the resulting soil medium is the best available in the permit area to support revegetation.' Also, soil materials are to be redistributed in a manner that prevents excessive compaction of the materials."

[19]These figures reflect only the "directly impacted" (*i.e.*, buried) streams, and not the streams which are significantly "indirectly" impacted (*e.g.*, by toxic selenium levels or other impacts on stream chemistry, temperature, flow, energy, sedimentation, or biota (DEIS III.D-1 - D-8)) downstream from MTM/VF operations, (DEIS App. I, pp. iii-iv), which "indirect impacts ... will continue regardless of alternative selected by decision makers." DEIS IV.B-5. Further, as the FWS has observed: "Even if EPA restricts consideration of impacts to the reach of stream below the filled reach, studies described in section III.D show that fills contribute to significant degradation to the overall chemical, physical, and biological integrity of adjacent waters. For example, below fills the ambient water quality criterion for selenium concentration is exceeded consistently, natural flow regimes are altered, and macroinvertebrate diversity is depressed." 1/02/03 Tibbott e-mail, Ex. 57, p. 2.

"generally unsuitable" for valley fills. In so doing, EPA and the Corps are signaling that, as a general matter, valley fills beyond the ephemeral reach are not likely to meet the requirements of the Guidelines. Given MTM/VF EIS findings on (previously little-understood) value of headwater streams; the degradation of aquatic life and water quality within and downstream of valley fills; the "persistence and permanence of the effects" (factors the Guidelines say should be given special emphasis); and the anticipated difficulty in developing meaningful compensatory mitigation for these impacts, the "unsuitable" designation is appropriate and logical.

8/21/02 Densmore e-mail, Ex. 39, Attachment, p. 1. However, this proposal "was subsequently voted down within the Executive Committee in part because a decision appears to have been made that even relatively minor modifications of current regulatory practices are now considered outside the scope of the EIS process." 9/30/02 Densmore e-mail, Ex. 42, Attachment, p. 1.

Further, as explained in detail in section II.H. of these comments, *all* of the alternatives considered in the DEIS – including the "no action alternative" – contemplate eliminating the stream buffer zone (SBZ) rule, which is the strongest current protection for intermittent and perennial streams, and which is, in some cases, the only protection for threatened or endangered species habitat.[20] No alternative contemplates keeping the SBZ rule in place as it currently exists. The failure of the DEIS to consider any alternative which incorporates restrictions on stream loss renders the DEIS's consideration of "all reasonable alternatives" insufficient to meet the requirements of NEPA, and restrictions on stream loss, either individually or cumulatively, should be considered as feasible alternatives.

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5. Individual and Cumulative Minimal Impacts Thresholds for NWPs Should Be Considered

Finally, individual and cumulative minimal impact thresholds for NWPs should be considered because: (1) Section 404(e) of the CWA requires permitting agencies to determine whether individual and cumulative impacts are more than minimal, (2) MTM/VF activities do exceed the minimal impacts threshold on both an individual and cumulative basis, (3) the 250-acre individual threshold established in the Bragg agreement has reduced the size and number of valley fills, (4) the application of that threshold via the Bragg agreement *specifically contemplated* that *this EIS* would establish individual and cumulative minimal impact thresholds for NWPs, and (5) the DEIS illegally attempts to segment the required NEPA analysis by asserting that the establishment of minimum cumulative impact thresholds is "an independent

[20]For example, FWS has stated that: "Protection of some plants is secured through minimization of the disturbance of specific habitats. For example, riparian species such as Cumberland rosemary and Virginia spiraea require protection of streams and adjacent areas. Adherence to the 100-foot buffer zone regulation fulfills these plants' needs. Likewise, maintenance of a buffer zone along sandstone clifflines benefits the species that inhabit those areas ..." 12/20/02 FWS Letter, Ex. 54, p. 1 (emphasis added).

action from this EIS." DEIS II.B-16; II.C-5.

Section 404(e) of the CWA requires the Corps of Engineers to determine whether an individual activity will have more than minimal impacts both individually *and* cumulatively in conjunction with other past, present, and reasonably foreseeable future activities in the same category. Although the minimum cumulative impact threshold for permitting MTM/VF activities under NWPs has already been reached (as shown below in section II.G.1.b.), the Corps must nevertheless determine and establish where the individual and cumulative minimal impact thresholds lie.[21]

MTM/VF activities in Appalachia clearly have had, are having, and will continue to have significant *cumulative* adverse effects on the environment. Similarly, it is clear that the impacts of *individual* valley fills may be more than "minimal," because the DEIS itself states that "filling or mining stream areas even in very small watersheds has the potential to impact aquatic communities[,] some of which may be of high quality or potentially support unique aquatic species." DEIS III.D-4 (emphasis added).

The DEIS illegally attempts to segment the required NEPA analysis by asserting that establishment of minimal impact thresholds is "an independent action from this EIS," (*See, e.g.*, DEIS II.B-16, II.C-5), and that such determinations are best left to "case-by-case assessments." Id. The court in Marble Mountain Audubon Society v. Rice, 914 F.2d 179 (9th Cir. 1990), rejected a similar argument that the maintenance of a biological corridor need not be considered in a timber sale EIS because the corridor issue was "a forest-planning matter and therefore beyond the scope of [the EIS]." Id. at 182. Further, the "case-by-case" approach embraced by the alternatives in the DEIS is inherently inconsistent with the requirement in Section 404(e) of the CWA that activities permitted under NWPs cannot have more than minimal cumulative adverse effects. By segmenting each permit application and considering it in isolation from all other past, present, and reasonably foreseeable future applications, it is not possible to do a meaningful cumulative impact analysis. Rather, all of those other applications must be included in the cumulative impact analysis on a programmatic basis. The COE cannot restrict the cumulative impact analysis to a smaller subset of Appalachia, such as a discrete watershed.

The DEIS acknowledges that the 250-acre threshold established in Bragg is useful and effective in reducing the size and number of valley fills because "[t]he COE Huntington District found [that] this condition contributed to conscious attempts by the regulated coal industry to

[21]EPA stated in June, 2002, for example, that: "If Alternative B is to be selected, ... a minimum impact threshold must be developed for the purposes of triggering a more rigorous permit review process under CWA Section 404... The direct and indirect aquatic impacts from MTM/VF operations are arguably more than minimal, complicating the NWP 21 issue..." 6/10/02 Hoffman e-mail, Ex. 29, Attachment ("EPA Issues - MTM/VF EIS"). EPA further stated: "We believe NWP 21 minimal impact thresholds ... (individually and cumulatively) are required." 6/14/02 Rider and Hoffman e-mails, Ex. 31, 32.

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avoid the IP process by keeping proposed fill sizes below the 250-acre threshold." DEIS II.C-5; *see also*, DEIS II.C-73 ("Based on the fact that there have been 5 individual permit applications compared to the 81 projects approved under NWP 21 in West Virginia, it appears [that] applicants are designing the majority of MTM/VF proposals to stay below the 250-acre minimal impact threshold and thereby avoid the IP process."). Thus, the DEIS shows that the need for a minimal impacts threshold, both individually and cumulatively, exists, and that the 250-acre threshold has been proven to be useful and effective in addressing this need.[22] Further, the FWS in January, 2003, proposed a 75-acre threshold "based on data specifically collected for this EIS." 1/28/03 Densmore e-mail, Ex. 66.[23] Therefore, the DEIS should have considered individual and cumulative minimal impact thresholds for NWPs.

Indeed, the DEIS acknowledges that "[t]he 250-acre general minimal impact threshold was intended as an interim threshold based on the assumption that this EIS would find the basis for some other threshold for NWP 21 applicability." DEIS II.C-73 (emphasis added). The DEIS is a bit schizophrenic, however, regarding whether it does, in fact, consider such a threshold. Although the DEIS repeatedly asserts that "[t]he extension of this [Bragg 250-acre] threshold through a regional permit condition by the COE is an independent action from this EIS," (DEIS II.B-16; II.C-5), the DEIS incongruously also asserts that the 250-acre threshold arising via Bragg would continue to apply on a "regional" basis under the "preferred" Alternative 2. *See, e.g.*, DEIS II.C-17 ("Action 1.2: The COE ... would make a case-by-case determination of the applicability of NWP 21, subject to a regional condition in certain geographic areas that valley fills proposed in watersheds larger than 250-acres would generally require IP processing"); DEIS IV.B-8 ("This [Bragg 250-acre threshold] would continue to apply to certain geographic

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[22]The OSM has argued that "other factors" could account for the fact that there were fewer valley fills following the institution of the 250-acre threshold. However, the self-serving nature of that position is belied by a March 11, 2003 from the COE's George Dunlop, who explains: "[T]here should be discussion about the OSM perspective that there were other factors operating at the same time as thresholds and those other factors may have been the reasons that there were fewer valley fills after the thresholds were in place. OSM is very sensitive about the message that thresholds result in improved environmental quality. IF that were the case, then the real message is that 200 would be better, 100, better yet and 0 fills, best of all." 3/12/03 Hodgkiss e-mail, Ex. 68, Attachment, p. 1. Further, a January 16, 2003 memorandum identified a series of "key issues that we anticipate will be raised when the DEIS is published for public review," including the following: "Since smaller fills would seem to coincide with reduced environmental impacts, why is the current version of the DEIS not recommending such limits?" Ex. 62.

[23]That FWS proposal further notes that "OSM's fill inventory indicates that historically, most valley fills have been [less than] 75 acres (70% of permits in VA, 81% in KY, 59% in WV)," and that "[p]revious studies in developing areas in the mid-Atlantic have noted that impacts to stream ecosystems are identifiable when [more than] 10% of a watershed is developed." 1/28/03 Densmore e-mail, attachment at 2, n.1 and n.3 (A-167).

locations under the No Action and Preferred (Alternative 2) Alternatives and it is anticipated that the consequences to fill size would continue."). The DEIS muddies the waters even further by stating that under Action 12, applicable to *all three* action alternatives, "[t]he COE ... would compile data ... [to] be used to determine the extent of cumulative impact areas for appropriate resources and ascertain whether a "bright-line" cumulative impact threshold is feasible for CWA Section 404 MTM/VF permits." DEIS II.C-69.

Thus, the DEIS simultaneously asserts that the Bragg 250-acre threshold was based on an assumption that this EIS would determine a minimal impacts threshold; that establishment of a minimal impacts threshold is "an independent action from this EIS;" that the Bragg 250-acre threshold would continue to apply under Alternative 2, but only on an undefined "regional" basis; and that under all three action alternatives the COE and other agencies would "compile data" to be used in order to determine whether a minimal impacts threshold is "feasible." This is internally inconsistent on multiple levels. If the DEIS acknowledges that the Bragg agreement included an "assumption" that this EIS would establish a minimal impacts threshold, why does the DEIS also assert that such an action must be "independent from this EIS"? If such a determination is necessarily external to the EIS, why is the threshold applicable under Alternative 2? If the threshold is applicable under Alternative 2, why is it only applicable on a "regional" basis, rather than to the entire Appalachian region covered by the DEIS? What is the "region" to which the threshold would be applicable under Alternative 2? If this EIS determines that the threshold should be applicable on a "regional" basis under Alternative 2, why must the COE simultaneously "compile data" in order to determine whether such a threshold is "feasible" (since the "data compilation" under Action 12 is applicable to all three action alternatives)? If all three action alternatives under this EIS contemplate "data compilation" in order to determine whether a minimal impacts threshold is "feasible," why must the actual establishment of such a threshold be "an independent action from this EIS"?

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In any event, the DEIS is internally inconsistent and should be clarified. Further, if the 250-acre *individual* threshold would continue to apply under Alternative 2, but only in West Virginia, then the DEIS fails to articulate any rationale for not applying the same threshold in the entire Appalachian region covered by the DEIS. Further, the alternatives considered in the DEIS illegally segment their consideration of the effects of MTM/VF operations, considering each such operation in isolation from all past, present, and reasonably foreseeable future MTM/VF operations, thereby failing to adequately consider the *cumulative* impacts of mountaintop removal mining and valley fills in Appalachia. This "case-by-case" approach fails to fulfill the fundamental purposes of NEPA and fails to satisfy the requirements of Section 404(e) of the CWA. For these reasons, any alternative selected should determine minimal impact thresholds, both individually and cumulatively.

6. The "No Fill" Alternative Should Be Considered

Federal case law discusses the NEPA requirement that agencies consider the alternative of "total abandonment of the project." Although the cases deal with public land, and

mountaintop removal mining would occur on private land, the *streams* which would be buried or damaged by the valley fills are "waters of the U.S." and are therefore analogous to the "public land" at issue in the "total project abandonment" cases. Therefore, the MTM/VF DEIS must consider a "no fill / no stream damage" alternative in order to present the decision-maker with the full spectrum of possibilities. Although "mountaintop removals" may not be logistically possible under the "no fill" alternative, that does not relieve the DEIS of the requirement to consider the "no fill" alternative. As the courts have stated: "This requirement ... seeks to ensure that each agency decision maker has before him and takes into proper account all possible approaches to a particular project... Only in that fashion is it likely that the most intelligent, optimally beneficial decision will ultimately be made." Calvert Cliffs' Coordinating Committee v. U.S. Atomic Energy Commission, 449 F.2d 1109, 1114 (D.C. Cir. 1971). Put another way, "[s]uch an alternative ... afford[s] the opportunity for scientific and public participation and debate regarding the delicate balance between preserving natural resources and ... [resource] management." Friends of Bitterroot, Inc. v. U.S. Forest Service, 900 F.Supp. 1368, 1374 (D.Mont. 1995). *See also*, All Indian Pueblo Council v. United States, 975 F.2d 1437, 1444 (10th Cir. 1992) ("NEPA requires a 'detailed' EIS '*to ensure that each agency decision maker has before him and takes into proper account all possible approaches to a particular project* (including total abandonment of the project) which would alter the environmental impact and the cost-benefit balance.'") (citation omitted, italics in original, underlining added).[24]

In Friends of Bitterroot, the court remanded an EIS to the U.S. Forest Service with instructions that the agency was *required to consider* the "less environmentally damaging" *alternative* of preserving roadless lands in order to provide wildlife corridors essential for maintaining biological diversity. There, the USFS had not included any alternative which would have excluded logging of roadless areas, arguing that such an alternative would not have satisfied the "purposes" of the forest plan. The court rejected this argument, holding that the failure to "consider all reasonable alternatives so as to ensure an EIS fosters informed decision making" by "address[ing] an alternative preserving existing roadless lands" compelled the court to remand to the agency. The court's decision was based in part on comments by the Montana Department of Fish, Wildlife & Parks that wildlife corridors were essential for maintaining biological diversity. The court in Friends of Bitterroot first observed that:

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[24]*See also*, MTM/VF DEIS Agenda for Executive and Steering Committee Meeting of November 21, 2002, which states:

> -Lack of environmental contrast; *is a fill restriction component needed in Alternative 1 to provided [sic] most environmentally-protective alternative? ...*
> -OFA states that NEPA compliance not satisfied; alternatives need not be limited to existing statutory authority — *Should a "no mining" or other restrictive alternative be included?*

11/18/02 Hodgkiss e-mail, Ex. 52, Attachment (underlining added).

NEPA requires the preparation of an EIS ... to ensure each agency considers all possible approaches to a particular project (including total abandonment of the project) which would alter the environmental impact and the cost-benefit balance.

Id. at 1371 (citation omitted) (emphasis added). The court continued:

> [P]laintiffs contend the Trail Creek EIS fails to adequately analyze all reasonable alternatives, **including a less environmentally damaging alternative that would exclude logging and road building** activity in existing roadless areas within the Beaverhead National Forest ... **in order to preserve that area's value as secure wildlife habitat.** In response, defendants assert the alternative advanced by the plaintiffs would not have met the management goals ... of the Beaverhead National Forest Plan.
> ...
> In the case *sub judice*, the Forest Service examined seven alternate courses of action... [T]he **action alternatives all called for varying degrees of timber harvesting in the Beaver Lakes roadless area.** ...
> **[T]o the extent defendants maintain an alternative aimed at preserving the Beaver Lakes roadless area would be "pointless," based upon the goals of the Beaverhead Forest Plan, ... [d]efendants position is contrary to NEPA's underlying tenet, *i.e.*, that agencies consider all reasonable alternatives so as to ensure an EIS fosters informed decision making.** *See*, Idaho Conservation League v. Mumma, *supra*, 956 F.2d at 1519-20.
> The Forest Service cannot deny there is some benefit to be derived from considering an alternative that preserves the Beaver Lakes roadless area. Plaintiffs, **as well as the Montana Department of Fish, Wildlife & Parks,** whose considerable expertise in the area of wildlife management is undisputed, **expressed concerns that preservation of the Beaver Lake's roadless area warranted full consideration in the Trail Creek NEPA process given the area's high security value for wildlife...**
> **[T]he NEPA process would have been properly served by development of an action alternative that preserved roadless lands** in the Trail Creek area. Such an alternative would have afforded the opportunity for scientific and public participation and debate regarding the delicate balance between preserving natural resources and timber management.
> Accordingly, **the EIS' failure to address an alternative preserving existing roadless lands in the Trail Creek area renders [sic] compels this court to REMAND this matter for further administrative proceedings.**

Id. at 1373-74 (footnote and citations omitted) (emphases added).

Friends of Bitterroot is directly applicable to the MTM/VF DEIS, where both EPA and FWS have expressed grave concerns about the lack of alternatives containing substantive environmental and wildlife habitat protections. The DEIS has failed to consider any "no fill" alternative, or, indeed, any alternative containing substantive restrictions on the number, size, location, or impacts of valley fills, or substantive protections for forest ecosystems and riparian habitat. These failures render the DEIS inadequate so that it must be remanded for correction and reissued for public comment. 1-13

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7. An "Environmentally Preferred" Alternative Should Be Considered

Similarly, an "environmentally preferred" alternative should be considered. 40 C.F.R. § 1505.2(b). At a June 18, 2002 Steering Committee meeting to reconsider the alternatives framework, EPA and FWS took the position that the DEIS must consider alternatives to reduce environmental impacts. Ex. 33, Proposed Agenda, p. 8. As a result of this meeting, the Steering Committee agreed on a revised framework which identified the "Environmentally Preferable Alternative" ("Alternative B"), which, among other things, "restrict[ed] fills to the ephemeral zone...." Id. at 11; 6/19/02 Hoffman email, Ex. 34, Proposed EIS Alternative Framework. A later draft further developed this into the "most environmentally protective alternative." 6/26/02 Robinson email, Ex. 35, Attachment.

Subsequently, FWS proposed another "'environmentally preferred' alternative," identified as "Alternative 4." 7/31/02 Tibbott e-mail, Ex. 36. FWS' Alternative 4 would have applied the SBZ rule as written and applied the antidegradation policy to prohibit filling in intermittent and perennial streams (thus allowing fills only in ephemeral streams). Id. The FWS explained that this "environmentally preferred alternative:"

- Avoids setting undesirable CWA precedents (weakening the application of the antidegradation policy and the spirit and intent of the CWA itself; allowing out-of-kind mitigation to buy down impacts that are clearly more than 'minimal'; allowing the issuance of NWPs for activities that are clearly more than 'minimal'; issuing individual permits for activities that clearly cause 'significant degradation').
- Most closely responds to the adverse aquatic and terrestrial impacts documented by the EIS studies.
- Industry has demonstrated that it can still mine coal even if fills are restricted to the ephemeral zone...
- Allows the use of the 35-acre scenario in the EIS, giving us at least one alternative whose effects can actually be quantified in terms of environmental and economic consequences.

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Id., Rationale, p. 1. "[T]he EPA and FWS Steering Committee members agree[d] that this version [of the alternatives which included this 'alternative 4'] represent[ed] an accurate portrayal of possible viable contrasting alternatives..." 8/13/02 Robinson e-mail, Ex. 37, p. 1.

However, shortly thereafter, the Steering Committee's decision was overruled by the DEIS Executive Committee. Unnamed higher-level agency "executives instructed the SC to attempt to construct the alternatives for the EIS in a framework based largely on coordinated decision making for SMCRA and CWA–with no alternative restricting fills." Ex. 41, 9/23/02

Agenda, p. 1. According to FWS, its alternative "was subsequently voted down within the Executive Committee in part because a decision appears to have been made that even relatively minor modifications of current regulatory practices are now considered outside the scope of the EIS process." 9/30/02 Densmore email, Ex. 42, FWS Comments, p. 1. Minutes of a July 14, 2002 Executive Committee meeting show that a new three-alternative approach was adopted. 8/15/02 e-mail, Ex. 38, Executive Committee Discussion. As a result, the prior alternatives restricting valley fills were stripped from the DEIS. Instead, the new alternative framework considered only process alternatives.

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Thus, the DEIS irrationally dismissed every proposal for an "environmentally preferred" alternative. Any record of decision regarding MTM/VF operations in Appalachia will be unable to comply with 40 C.F.R. § 1505.2 because the DEIS does not identify any "environmentally preferred alternative" or consider any alternative which is distinguishable from any other alternative in terms of environmental consequences.

F. The DEIS Violates NEPA Because It Presents Irrational Reasons for Eliminating Reasonable Alternatives.

The DEIS violates NEPA because it does not present valid reasons for the elimination of reasonable alternatives from detailed analysis. The DEIS must present the reasons, in brief discussion, for the elimination of alternatives from detailed study. 40 C.F.R. § 1502.14. By failing to articulate valid reasons for the elimination of reasonable alternatives, the DEIS fails to satisfy this NEPA requirement.

The DEIS identifies eight "alternatives considered but not carried forward." DEIS II.D-1. These eliminated alternatives were: 1) restriction of individual valley fill size based on the type of stream segments buried (ephemeral, intermittent or perennial); 2) restriction of individual valley fill size based on watershed size (35, 75, 150, and 250 acres); 3) establishment of "minimal impact thresholds" based on watershed size (75 or 250 acres) below which MTM/VF operations could be permitted under NWP 21 rather than individual CWA § 404 permits; 4) restricting individual valley fills based on maximum "cumulative impact thresholds;" 5) fill restrictions based on protecting high-value streams by designating all headwater streams as "generally unsuitable" for valley fills pursuant to the CWA Advanced Identification of Disposal Sites (ADID) process; 6) fill restrictions based on protecting high-value streams by designating all headwater streams as "special aquatic sites" pursuant to CWA § 404(b)(1); 7) fill restrictions based on protecting high-value streams by preserving all headwater streams with an EPA "advanced veto" pursuant to CWA § 404(c); and 8) prohibition of valley fills in waters of the U.S. based on the CWA's "antidegradation policy." DEIS II.D-1 - 9.

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1. Even if There Were Insufficient Information to Draw a "Bright Line" Type of Restriction, Some Type of Individual or Cumulative Restriction on Valley Filling Must Be Considered

As the DEIS recognizes, there are many potential alternatives for restricting valley fills. They include restrictions on fill size (35, 75, 150, or 250-acre watersheds), fill location in different types of streams (ephemeral, intermittent or perennial), the percentage of streams in a particular watershed that can be filled, or the amount of stream length that can be filled. The primary argument advanced in the DEIS for rejecting these alternatives is that there is insufficient information at this time to draw a "bright line" that works in every situation, and variations between streams and watersheds make it difficult to apply any "bright line" to differing individual situations. The DEIS states that "[s]cientific data collected for this EIS do not clearly identify a basis (i.e., a particular stream segment, fill or watershed size applicable in every situation) for establishing programmatic or absolute restrictions that could prevent 'significant degradation.'" DEIS II.D-8. The DEIS therefore posits that since one general rule does not apply in every situation, there is no basis for applying any general rule at all, and the only alternative is to apply a "case-by-case" analysis to every individual situation. DEIS II.D-1 to II.D-9.[25] The perfect is the enemy of the good, as the DEIS sets up each individual restriction like a straw man and then knocks it down by saying that one problem or another makes it inapplicable in certain situations. Id.

"[W]hile inconclusive evidence may serve as justification for not *choosing* an alternative, here it cannot serve as a justification for entirely failing to 'rigorously explore and objectively evaluate *all* reasonable alternatives." The Fund for Animals v. Norton, Civil No. 02-2367 (D.D.C.), Dec. 16, 2003 Mem. Op., p. 37. Furthermore, even if there were insufficient information to draw a "bright line," there is sufficient information to develop a "rule of thumb" that protects environmental resources in most situations and retains enough flexibility to adjust to individual situations.[26] That was the whole rationale behind the 250-acre limit on NWP 21 authorizations in the Settlement Agreement. No one knew enough to be sure that that was the right line to draw, but it was necessary to draw *some* line in the interim until more information was developed. Now, the government has much more information, but it is doing nothing to draw that line more accurately based on that new information. Instead, it is trying to use the lack of perfect information as the excuse for delay and for potentially eliminating the 250-acre limit altogether.

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The DEIS does not clearly state whether the 250-acre limit will be retained. It suggests that, as one alternative, the existing limit could be retained "until such time as sufficient scientific data may be available to establish a specific threshold." DEIS II.D-6; II.C.60.

[25]However, FWS has observed that: "Designating all headwater streams as special aquatic sites is no different than designating all wetlands or all riffle-pool complexes as special aquatic sites as EPA has already done in the 404(b)(1) guidelines." 11/13/02 Tibbott e-mail, Ex. 49.

[26]EPA argued in November, 2002: "Whether or not the 'bright line' percentage threshold eventually becomes part of Alternative 1, we should still include in Alternatives 1 and 2 a commitment to develop a cumulative impact assessment protocol specific to headwater streams." 11/15/02 Forren e-mail, Ex. 51.

If that limit were abandoned, it would be an arbitrary and unreasonable action. In Heartwood, Inc. v. U.S. Forest Service, 73 F. Supp.2d 962 (S.D.Ill. 1999), *aff'd*, 230 F.3d 947 (7th Cir. 2000), the court enjoined the agency's departure from a similar "interim measure" threshold. There, the U.S. Forest Service increased its interim categorical exclusion from NEPA requirements, based on the magnitude of a timber harvest, by a factor of ten. The court found that this was a "classic example of an arbitrary decision," because it was not based on any scientific evidence. 73 F. Supp.2d at 975. Similarly, if the Corps abandoned the 250-acre threshold, in the face of overwhelming evidence that the cumulative effects of valley fills are more than minimal and that the Bragg 250-acre interim threshold has been useful and effective in limiting valley fill size,[27] it would similarly be arbitrary and capricious.[28]

If the 250-acre limit is retained and action to lower that limit is postponed, that would also be unreasonable.[29] The Corps itself has applied a lower limit with NWPs 39, 40, 42, and 43, providing that such authorizations do not apply to fills that exceed 300 linear feet of a perennial stream bed. 67 Fed. Reg. at 2060. In contrast, NWP 21 has been used to fill hundreds of miles of perennial streams. The Corps is applying less stringent rules to mining activities than to non-mining activities, without any rational basis for distinguishing between them.[30] Indeed, from the standpoint of stream destruction, mining activities pose greater risks than non-mining activities. As FWS has stated, "there is no other single industry or activity in the country that receives

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[27] *See* section II.E.5 above.

[28] Further, the court in Arkansas Nature Alliance, Inc. v. U.S. Army Corps of Engineers, 266 F. Supp.2d 866, 887 (E.D. Ark. 2003), observed that: "It seems pretty plain that when there is not a bright line for whether a project can be handled by 'categorical exclusion' [*i.e.*, a 'significant impact' threshold], District Engineers should raise their 'environmental sensitivity' and err on the side of performing an EIS, particularly when the proposed action could have substantial environmental effects." Similarly, here, in the absence of a "bright line," the DEIS should err on the side of "environmental sensitivity" and rely on an interim "rule of thumb" such as the Bragg 250-acre threshold, rather than simply conclude that since the precise threshold is not yet clear, there should be no threshold at all.

[29] *See also*, Kern v. U.S. Bureau of Land Management, 284 F.3d 1062, 1072 (9th Cir. 2002): "NEPA is not designed to postpone analysis of an environmental consequence to the last possible moment. Rather, it is designed to require such analysis as soon as it can reasonably be done."

[30] FWS has observed: "[T]he impacts of Walmart and even highway projects pale in comparison to the mining impacts. If the Corps starts issuing permits for the total destruction of miles of streams, what precedent does that set for the significant degradation test for the 'big box' stores and shopping malls and housing developments and all the other permit applicants that now have relatively minor impacts on streams? Would the Corps be still able to require them to avoid the streams?" 10/30/02 Tibbott e-mail, Ex. 45.

Section 404 authorization for the total elimination of waters of the United States on the scale that stream destruction occurs with mountaintop mining," (10/30/02 Tibbott e-mail, Ex. 45), and "there are no other activities in the country that routinely eliminate entire streams." 11/13/02 Tibbott e-mail.

There are ways to establish general rules, without bright lines, and with the opportunity to adjust the rule for individual situations. For example, the Corps could establish a rebuttable presumption that valley fills should not be placed in intermittent or perennial streams. FWS proposed such an alternative in August 2002, but it was summarily rejected without any analysis:

> EPA and COE issue regulatory guidance that, based on the factual determinations made in the EIS regarding direct impacts, downstream impairment, and the impracticablility of available mitigation, fills in intermittent and perennial stream reaches are presumed to cause or contribute to significant degradation, pursuant to the 404(b)(1) Guidelines. Permit applicants who can demonstrate that their fills will not significantly degrade intermittent or perennial streams would be eligible for an individual permit.
>
> Fills in ephemeral stream reaches would be eligible for NWP 21 authorization by the COE. If COE determines, through their stream protocol, that the values of affected ephemeral streams are high, and/or cannot be compensated, or if the cumulative effects are more than minimal, an individual permit will be required. COE will revise NWP regulations to reflect limits on authorization for NWP 21.

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8/13/02 Robinson email, Ex. 37, 8/13/02 Alternatives Matrix, p. 3. FWS stated that this alternative "was subsequently voted down within the Executive Committee in part because a decision appears to have been made that even relatively minor modifications of current regulatory practices are now considered outside the scope of the EIS process." 9/30/02 Densmore e-mail, Ex. 42, FWS Comments. Thus, the DEIS irrationally dismissed every proposal for a fill restriction, regardless of the merit of the proposal.

2. The DEIS' Claim of Lack of Harm Is Erroneous and Is Not a Valid Basis for Rejecting Fill Restriction Alternatives

The DEIS claims that fill restriction alternatives were eliminated from consideration because MTM/VF operations do not contribute to significant degradation of U.S. waters. The DEIS states:

> The data indicate that impacts may (or may not) be linked to the presence of mining, and not necessarily related to the size of fills... Impacts could include several stressors, such as valley fills, residences, and/or roads. Therefore, a causal relationship between the impacts and particular stressors could not be established with the available data. Further, the EIS studies did not conclude that impacts documented below MTM/VF operations cause or contribute to significant degradation of waters of the U.S. [40 C.F.R. 230.10(c)].

DEIS II.D-9.

This claim of no documented harm is flatly erroneous. First, this claim completely ignores the harm caused when streams are filled or mined, and instead considers only harm downstream from such fills or mining. The DEIS admits elsewhere that "[w]hen streams are filled or mined all biota living in the footprint of the fill or in the mined area are lost." DEIS III.D-2. Over twelve hundred miles of streams, or 2% of total streams, fall within this category. Id. "Headwater streams are destroyed by filling." DEIS, App. J, p. 70. This degradation must be deemed significant. There is no evidence showing that buried streams can be recreated successfully elsewhere on mined sites. Id. "Past efforts at compensatory mitigation have not achieved a condition of no-net loss of stream area or functions." DEIS III.D-17. Consequently, this loss is permanent and irreversible.

Second, there is no doubt that valley fills cause significant harm to downstream watersheds. "The fisheries and technical studies in support of the MTM/VF EIS support that the functions of these [headwater stream] systems may be impacted for considerable distances by upstream fills." DEIS, App. J, p. 70. "MTM/VF impacts of critical headwater stream systems constitute one of the most major threats to this system in the study area." Id. (emphasis added). "Impacts from MTM/VF activities to the ability of headwater streams to maintain their nutrient cycling function are of great concern." Id. at 74 (emphasis added).

The EPA and FWS scientists who commented on the draft DEIS agreed with these conclusions. "EPA's Cincinnati laboratory prepared the existing WV statistical evaluation that concluded [there is a] strong correlation between mining and downstream impacts." Ex. 41, 9/23/02 Executive Meeting Agenda, p. 2. An EPA scientist similarly commented that:

> EPA's studies and other studies have found that the strongest and most significant correlations are between biological condition and conductivity. We do know that the stream segments downstream of some of the fills are impaired, and we believe the impairments are due to water chemistry changes, based on the strong correlations.

Ex. 55, 12/20/02 Comments by EPA Wheeling Staff. An FWS scientist similarly objected to the "no significant degradation" statement, stating that "If impaired aquatic life, and selenium above water quality standards, resulting in streams being placed on the 303(d) list don't constitute significant degradation, what would?" 4/21/03 Rider email, Ex. 71, attached file: chlVcomments.wpd, p. 2.

The stream chemistry study cited by FWS found that:

> MTM/VF mining is associated with violations of the stream water quality criteria for total selenium. Selenium violations were detected in each of the five study watersheds and all were at sites in the category Filled, downstream from MTM/VF operations. No other site categories had violations of the selenium limit.

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DEIS App. D, p. 2. It also found that "[t]he selenium data indicate numerous violations of the West Virginia stream water quality criterion related to MTM/VF mining," (id. at 47), and explains that selenium is "highly toxic" in amounts "slightly greater" than those found naturally, and is "strongly bioaccumulated in aquatic habitat." Id. at 73. *See generally* section II.G.2. of this letter. Consequently, the DEIS's claim of lack of harm is erroneous and is not a valid basis for eliminating alternatives to restrict fills.

3. Even if Sufficient Information Were Not Available Now to Develop Fill Restrictions, That Information Must Be Obtained, Because It Is Essential to Choosing Among Alternatives, and the DEIS Does Not Demonstrate that the Cost of Obtaining That Information is Exorbitant.

Even if sufficient information were not available now to develop fill restriction alternatives, that information is essential and therefore must be obtained prior to making a final decision. The CEQ regulations provide that "[i]f the incomplete information relevant to reasonably foreseeable significant adverse impacts is essential to a reasoned choice among alternatives and the overall costs of obtaining it are not exorbitant, the agency shall include the information in the environmental impact statement." 40 C.F.R. § 1502.22(a). There is no doubt that information about the impacts of valley fills on headwater stream systems is of paramount importance to choosing between alternatives. Indeed, that was the whole reason for preparing this EIS. The Settlement Agreement created the interim 250-acre fill restriction until information and alternatives developed in this EIS could create a better one. As the DEIS itself admits, "[t]he 250-acre general minimal impact threshold was intended as an interim threshold based on the assumption that this EIS would find the basis for some other threshold for NWP 21 applicability." DEIS II.C-73 (emphasis added). Now, the DEIS says that, despite millions of dollars and four years of information-gathering devoted to the essential task of identifying this alternative, the DEIS cannot find it.

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In evaluating whether the cost of obtaining this information is exorbitant, the cost must be measured in terms of what has already been spent. Obviously, the federal government believed that that cost was not exorbitant, or else it would not have spent it. The DEIS does not assign a specific figure to that cost, but as of February 13, 2002, the government had "spent or committed about 4.5 million" dollars to the DEIS. 2/13/02 Hoffman email, Ex. 14. It is hard to imagine that the cost of studies to resolve the stream issue will be more than a small fraction of that amount. The "stream impact" studies performed to date are only a few of the total of 30 studies that were performed for the DEIS. At a minimum, the DEIS must be revised to explain how much more it would cost to resolve the stream impact issue. If that cost is not more than the amount already invested and spent, the information must be obtained before a decision is made.

The federal courts have held that NEPA requires agencies to conduct research and provide information whenever the information is "important," "significant," or "essential" to a reasoned decision and the costs are not exorbitant in light of the size of the project and/or the

possible harm to the environment. For example, the court in Oregon Environmental Council v. Kunzman, 817 F.2d 484, 495 (9th Cir. 1987) (citation omitted), held: "In general, NEPA imposes a duty on federal agencies to gather information and do independent research when missing information is 'important,' 'significant,' or 'essential' to a reasoned choice among alternatives." The court in Save Our Ecosystems v. Clark, 747 F.2d 1240, 1244 n. 5 (9th Cir.1984), similarly explained:

> [T]he duty to gather information and do research under section 1502.22(a) should not turn on whether the information is "essential" or "important." ... [G]eneral NEPA law requires research whenever the information is "significant." As long as the information is "important," "significant," or "essential," it must be provided when the costs are not exorbitant in light of the size of the project and/or the possible harm to the environment.

The court continued:

> We recognized in SOCATS that an agency may be required to do independent research on the health effects of a herbicide. This is not a new requirement.
> In Foundation for North American Wild Sheep v. U.S. Dept. of Agriculture, 681 F.2d 1172 (9th Cir.1982), this court held an EIS inadequate because it failed to address the effect on bighorn sheep of opening a road when those effects were uncertain. We said, "the very purpose of NEPA's requirement that an EIS be prepared for all actions that may significantly affect the environment is to obviate the need for such speculation by insuring that available data is *gathered* and analyzed prior to the implementation of the proposed action." 681 F.2d at 1179 (emphasis added). Similarly, in Warm Springs Dam Task Force v. Gribble, 621 F.2d 1017 (9th Cir.1980), we held that an agency cured the defect in its EIS by *commissioning* a study about the effects of a newly discovered fault system on *that* dam. 621 F.2d at 1025-26. Other courts have imposed similar requirements on agencies. [citations omitted]
> Furthermore, in SOCATS and in Warm Springs we recognized that such a duty also flowed from the worst case analysis regulation:
>
> > If the information relevant to adverse impacts is essential to a reasoned choice among alternatives and is not known and the overall costs of obtaining it are not exorbitant, *the agency shall include the information* in the environmental impact statement.
>
> 40 C.F.R. § 1502.22(a) (emphasis added). Only if the costs are exorbitant or the means of obtaining the information is beyond the state of the art is the agency excused from compliance... 40 C.F.R. § 1502.22(b). The Forest Service presents no evidence and makes no argument that the costs are exorbitant or that research is impossible. Rather, it argues that it cannot be forced to do it. Section 1502.22 clearly contemplates original research if necessary.

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747 F.2d at 1248- 49 (footnote omitted).[31] *See also*, The Fund for Animals v. Norton, Civil No. 02-2367 (D.D.C.), Dec. 16, 2003 Mem. Op., p. 38 ("this failure to even consider taking the steps necessary to gather relevant information results in an incomplete EIS analysis"). Regarding the MTM/VF DEIS, even if sufficient information is not available now to develop fill restriction alternatives, that information is essential and therefore must be obtained prior to making a final decision. 1/2/03 Forren email, Ex. 58, EPA OGC Comments, pp. 2, 6-7.

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4. The DEIS Cannot Evade the Need to Consider Fill Restrictions on the Ground that Those Restrictions Are Prohibited by the CWA

The DEIS argues that applying the stream buffer zone rule under SMCRA to prohibit fills in intermittent and perennial streams would be inconsistent with existing CWA requirements allowing valley fills, and would therefore violate section 702 of SMCRA, 30 U.S.C. § 1292(a)(2), which provides that SMCRA does not supercede, amend or repeal the CWA. DEIS II.D-2.

EPA's Office of Water expressed concern in December, 2002 that the DEIS's legal position in this regard is incorrect, commenting that:

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> There are fairly sweeping legal conclusions here that the stream buffer zone rule could not be used to determine allowable stream segments for filling because doing so would supercede the CWA, something [C]ongress precluded in SMCRA. The lawyers need to look at this more closely. I'm uncomfortable with the breadth of this argument...

1/7/03 Neugeboren e-mail, Ex. 59, OGC water law office comments, p. 1.[32]

Further, the DEIS's argument is directly inconsistent with the position taken by the United States in the Bragg litigation. In its brief in the 4th Circuit, the United States stated:

[31] Although Save Our Ecosystems applied 40 C.F.R. § 1502.22 when it still contained the "worst case analysis" requirement of then-Section 1502.22(b)(2), the holding and reasoning of the court pertains to the requirement of Section 1502.22(a) that "the agency shall include the information" if it is "essential" and the "costs of obtaining it are not exorbitant." That section is still applicable and remains unchanged by the amendment of the "worst case analysis" requirement.

[32] The position of the DEIS in this regard reflects the position of the OSM, with which the EPA and FWS disagreed during the development of the alternatives. *See, e.g.*, 8/13/02 Robinson e-mail, Ex. 37: "[T]he EPA and FWS Steering Committee members agree that this version [of the alternatives which includes the 'environmentally preferred alternative 4'] represents an accurate portrayal of possible viable contrasting alternatives... OSM agreed to disagree on Alternative 4... OSM disagreement stems from our belief ... that SMCRA must defer to the CWA standards regarding activities affecting waters of the U.S."

WVDEP has argued that because SMCRA cannot supersede, amend, modify, or repeal the CWA, SMCRA cannot be construed to prohibit any activity that would be allowed by the CWA. That argument is without merit. ...

SMCRA section 702 provides merely that SMCRA does not alter the existing regulatory schemes adopted by Congress in the CWA and other environmental statutes. ...

When Congress has intended that one statute should take precedence over another statute in the regulation of a particular activity, it has done so with language very different and much clearer than SMCRA section 702. ...

While WVDEP has asserted that it would create an impermissible statutory "conflict" to read the buffer zone rule to establish a stricter standard than that established by the 404(b)(1) guidelines, such a statutory construction does not create any such "conflict" as that term is understood in the law. As the Supreme Court has held, two statutes can be said to conflict only when it is impossible to comply with both. See Freightliner Corp. v. Myrick, 514 U.S. 280, 287 (1995). No such conflict arises if SMCRA is construed to prohibit some activities that would be authorized by the CWA, since it is possible to comply with both statutes by engaging in only those activities authorized by both statutes.

Where an activity is regulated under the CWA and SMCRA – i.e., a surface mining activity that involves the discharge of pollutants from point sources into U.S. waters — regulation of the activity is governed by the usual principles that courts apply to reconcile overlapping statutes. Under those principles, "when two statutes are capable of co-existence, it is the duty of the courts, absent a clearly expressed congressional intention to the contrary, to regard each as effective. 'When there are two acts upon the same subject, the rule is to give effect to both if possible.'" Morton v. Mancari, 417 U.S. 535, 551 (1974) (quoting United States v. Borden Co., 308 U.S. 188, 198 (1939)). See also 2A Sutherland Statutory Construction § 51.05 (4th ed. 1984). An activity governed by both the CWA and SMCRA must therefore satisfy the requirements of both statutes.

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Brief for the Federal Appellants, 4th Cir., No. 99-2683, April 17, 2000, pp. 45-49. Consequently, this reason for excluding consideration of fill restrictions is erroneous as a matter of law.

G. The DEIS Violates NEPA Because It Fails to Address or Remedy Continuing Violations of Federal Law.

1. The DEIS Violates the Clean Water Act Because It Assumes Continued Use of Nationwide Permits, Even Though the DEIS' Own Studies Demonstrate that the Minimal Cumulative Impact Ceiling for NWPs Has Already Been Exceeded.

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a. The CWA Prohibits Use of NWPs Unless the Permitted Activities Have Minimal Environmental Effects Both Individually and Cumulatively.

In order to satisfy the requirements of Section 404 of the CWA, 33 U.S.C. § 1344, each of the four alternatives considered in the DEIS, including the "no action alternative" and the three "action alternatives," contemplate the permitting of MTM/VF activities under NWP 21 pursuant to CWA Section 404(e).[33] Section 404(e) of the CWA clearly requires the Corps to determine whether an activity will adversely affect the environment both individually *and* when considered cumulatively with other such activities. In other words, an activity that has only minimal impacts by itself nevertheless may *not* be permitted under a NWP if the activity has more than minimal impacts when considered cumulatively with other existing and foreseeable future activities in the same category. Section 404(e) states, in relevant part:

> [T]he Secretary may ... issue general permits on a State, regional, or nationwide basis for any category of activities involving discharges of dredged or fill material if the Secretary determines that the activities in such category are similar in nature, will cause only minimal adverse environmental effects *when performed separately, and* will have only minimal *cumulative* adverse effect on the environment.

33 U.S.C. § 1344(e) (emphases added). The plain meaning of this statutory provision is that NWPs cannot authorize an activity unless the activity has minimal impacts both individually *and* cumulatively.

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The legislative history contains language identical to that of the statute. Subsection (e) was added to Section 404 of the CWA as part of the 1977 Amendments (Pub.L. 95-217, § 67(b), 91 Stat. 1600 (1977)). The House Conference Report makes clear that both the individual *and* cumulative impacts of an activity must be minimal in order to qualify for a NWP:

> Section 67 of the conference substitute ... adds a new subsection (e) to section 404 which gives the Secretary authority to issue general permits on a State, regional, or nationwide

[33]Under the "no action alternative," "Valley Fill impacts [are] assessed on [a] case-by-case basis to set NWP 21 or [individual permit (IP)] process; WV fills in less than 250-acre watershed[s] [are] generally eligible for NWP 21." DEIS II.B-19. The DEIS states that one "Proposal[] Common to Action Alternatives 1, 2, and 3" (DEIS II.B-10) is that "[t]he [U.S. Army Corps of Engineers (COE)] would ... evaluate whether programmatic 'bright-line' thresholds, rather than case-by-case minimal individual and cumulative impact determinations, are feasible for CWA Section 404 MTM/VF permits." DEIS II.B-11. The DEIS further explains that under "action alternative 1" "general permit NWP 21 authorization would be applicable ... in limited circumstances," and that "action alternative 2" recognizes that "some proposals will likely be suited for IPs, and others best processed as [NWP] 21," and that "action alternative 3" "is based on a procedural presumption by the COE that most MTM/VF applications would be processed as general permits under NWP 21..." DEIS ES-5.

basis for any category of activities involving discharges of dredged or fill material if the Secretary determines that the activities are similar in nature, and cause only minimal adverse environmental effects *when performed separately, and* will have only minimal *cumulative* adverse effect on the environment.

H. Conf. Rep. No. 830, 95th Cong., 1st Sess. 100 (1977), *reprinted in* 1977 U.S.C.C.A.N. 4424, 4475 (emphases added). *See also*, Riverside Irr. Dist. v. Stipo, 658 F.2d 762, 764 (10th Cir. 1981): "[A] nationwide permit or authorization is one the Secretary issues covering a category of activities occurring throughout the country which involve discharges of dredged or fill material which he determines will cause only minimal adverse environmental effects when performed separately, and which will have only minimal **cumulative** adverse effect on the environment." (Emphases added).

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Consequently, federal agencies cannot adopt any alternative that would allow the use of NWPs for any MTM/VF activities which have more than minimal cumulative environmental impacts. It is not enough that impacts of individual mines may not exceed the minimal impacts threshold, because the CWA requires minimal impacts both individually and cumulatively for any action to be permitted under a NWP.

b. The DEIS Demonstrates That the Cumulative Impacts of MTM/VF Activities in Appalachia Are More than Minimal.

Regarding stream and riparian habitat destruction ("cumulative aquatic impacts"), the DEIS states that "Direct impacts to 1,208 miles of streams is estimated based on the last 10 years of digital permit data. If mining, permitting and mitigation trends stay the same, an additional thousand miles of direct impacts could occur in the next ten years... The majority of the streams directly impacted are headwater streams." DEIS App. I, pp. 66-67; *see also*, DEIS App. I, p. v. Further, these numbers understate the total cumulative impacts because they reflect *only* the "directly impacted" (*i.e.*, buried) streams, and do not account for the streams which are significantly "indirectly" impacted (*e.g.*, by toxic selenium levels or other impacts on stream chemistry, temperature, flow, energy, sedimentation, or biota (DEIS III.D-1 to D-8)[34]) downstream from MTM/VF operations. DEIS App. I, pp. iii-iv.

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Regarding deforestation ("cumulative terrestrial impacts"), the DEIS demonstrates that MTM/VFs have already converted, and will continue to convert, huge portions of one of the most biologically diverse forest areas in the United States into grasslands. "When adding past, present and future terrestrial disturbance, the study area estimated forest impact is 1,408,372 acres which equates to 11.5% of the study area." DEIS IV.C-1. The destruction of these nearly 1.5 million acres of forest is profound and permanent because "unlike traditional logging activities associated with management of hardwood forest, when mining occurs, the tree, stump, root, and

[34]"The indirect impacts from MTM/VF will continue regardless of alternative selected by decision makers." DEIS IV.B-5.

growth medium supporting the forest are disrupted and removed in their entirety." DEIS IV.C-1. The FWS has similarly commented: "Most biologists would probably argue that the loss of the natural forest IS probably irreversible, as the unique combination of flowing streams, species diversity, organic matter, etc., has been lost. At the very least it is FAR LESS REVERSIBLE than timbering, which at least leaves seed sources and native soils in place." 4/21/03 Rider e-mail, Ex. 71, attached file: chIVcomments.wpd, p. 1 (emphasis in original). Appendix I to the DEIS – the "Cumulative Impact Study" prepared by EPA itself – states that "fundamental changes to the terrestrial environment of the study area may occur from mountaintop mining." (DEIS App. I, p. v (emphasis added)), explaining:

> Habitat changes will occur in the study area and these changes will involve a shift from a forest dominated landscape to a fragmented landscape with considerably more mining lands and eventually grassland habitat.

DEIS App. I, p. 93.

> Mountaintop mining and valley fill activities significantly affect the landscape mosaic. Landcover changes occur as forests are removed, the topography and hydrology is altered, and vegetation is eventually re-established. The result is an area drastically different from its pre-mining condition. Soil qualities are different, the vegetative community has a different structure and composition, and habitats are altered.

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Id., p. 23 (emphasis added). Further, FWS' Cindy Tibbott has stated, and EPA's William Hoffman has agreed, that:

> [R]e-establishing native hardwood forests on reclaimed mines is still experimental. We don't know what the long-term success will be. Even if hardwood forests can be re-established, it should be intuitively obvious that they'll be a drastically different ecosystem from pre-mining forests for generations, if not thousands of years...

Ex. 5 (emphasis added).[35]

[35]*See also*, DEIS IV.D-5: "[T]he permanent nature of filling would suggest that MTM/VF impacts to biotic interactions in headwater stream systems ... may constitute a[n] irreversible impact to this system in the study area." (emphasis added). *See also*, "Problems Identified/Confirmed/Inferred by Technical Studies, Ex. 6, p. 6: "Large-scale surface coal mining will result in the conversion of large portions of one of the most heavily forested areas of the country, also considered one of the most biologically diverse, to grassland habitat. Unless reclamation practices are changed drastically, it can be assumed that this forest to grassland conversion is, for all practical purposes, permanent. Even if reclamation practices are changed, we must still consider the recovery of a functional mesophytic forest ecosystem as a long-term ecological experiment with uncertain results." *See also*, 6/10/02 Hoffman e-mail, Ex. 29, EPA Issues - MTM/VF EIS: "Cumulative terrestrial impacts from MTM/VF activities are considered

Regarding wildlife destruction, the DEIS states that mountaintop removal mining engenders a "change in ... habitats [that] could put a number of species in peril." DEIS App I. p. v. EPA's "Cumulative Impact Study" finds that:

> The southern Appalachians have been identified by the Nature Conservancy as one of the hot spot areas in the United States for rarity and richness (Stein et al., 2000). This region is known to have the highest regional concentration of aquatic biodiversity in the nation. For this reason, it is hypothesized that impacts which result in decreases in genetic diversity, as measured by loss of species, loss of populations or loss of genetic variants, would have a disproportionately large impact on the total aquatic genetic diversity of the nation.

DEIS App. I, p. 78 (emphasis added). The DEIS further explains:

> Riparian habitats are generally ecologically diverse and they often provide habitat for unique, or ecologically important species... The projected potential adverse impacts in the West Virginia study area is 7,591 acres, or 3.2%. Approximately 55% of the projected riparian habitat impacts occur in first and second order streams which are important habitats to many species of ... wildlife.

DEIS App. I, p. vi. For example, "forest loss in the West Virginia portion of the study area has the potential of directly impacting as many as 244 vertebrate wildlife species." Id. at 86 (emphasis added). "The potential adverse impact of loss of habitat for [three forest interior bird species - Louisiana Waterthrush, Worm-eating Warbler, and Cerulean Warbler] has extreme ecological significance in that habitats required by these species for successful breeding are limited in the eastern United States." Id. at 90 (emphasis added).[36] "Loss of these species has more ecological importance than providing habitat for grassland species considered rare in the state because it suggests possible future endangerment of some forest interior species..." Id. at

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to be significant..."

[36]*See also*, Ex. 6, p. 5: "Populations of forest birds will be detrimentally impacted by the loss and fragmentation of mature forest habitat in the mixed mesophytic forest region, which has the highest bird diversity in forested habitats in the eastern United States. Fragmentation-sensitive species such as the cerulean warbler, Louisiana waterthrush, worm-eating warbler, black-and-white warbler, and yellow-throated vireo will likely be negatively impacted as forested habitat is lost and fragmented from MTM/VF." (emphasis added). *See also*, id.: "The forests of this particular geographic area are the core breeding area for a number of forest interior bird species that have extremely limited breeding ranges, including the cerulean warbler, which is currently under review by the Fish and Wildlife Service for endangered species listing."

91.[37] Further, "[s]alamanders are an important ecological component in the mesic forests of the study area... [and] are intimately associated with forest ecosystems..." Id. (citations omitted). "Assuming that 80% of the salamanders are lost in the projected forest impact areas, approximately 1,232,972,280 have the potential of being adversely impacted." Id. at 92-93 (citation omitted) (emphasis added). Further,

> [T]his EIS describes biotic interactions common in headwater streams and various vertebrate species including birds, salamanders (including newts), and mammals which require interactions with the aquatic environment in order to maintain their life cycle... Filling would eliminate all aquatic and aquatic-dependant interactions that would formerly have occurred in the filled area... [T]he permanent nature of filling would suggest that MTM/VF impacts to biotic interactions in headwater stream systems ... may constitute a[n] irreversible impact to this system in the study area.

DEIS IV.D-4 - 5 (emphasis added).[38]

In addition, the DEIS demonstrates that future mountaintop removal mining of the remaining recoverable reserves of coal in Appalachia is likely. Indeed, the DEIS projects that "the demand for central Appalachian coal will likely increase at some point in the future," (DEIS IV.I-1), explaining:

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> The U.S. Department of Energy (DOE) estimated in 1998 that 28.5 billion tons of high quality coal ... remain in the study area. DOE reported about 280 million tons of coal were extracted by surface and underground mining from the study area in 1998. Coal produced from the study area continues to provide an important part of the energy needs of the nation. Regionally, coal mining is a key component of the economy[,] providing jobs and tax revenue. Almost all of the electricity generated in the area comes from coal-fired power plants... [C]oal production remains high...

DEIS ES-2.

All such future mining is reasonably foreseeable and must be included in the cumulative impact analysis for each mine. *See, e.g.*, Defenders of Wildlife v. Ballard, 73 F. Supp.2d 1094, 1113-14 (D. Ariz. 1999), holding that the COE was required to consider the cumulative impacts

[37]Further, "[e]ven if the grassland habitat created by reclamation is optimal habitat for grassland bird species (which may not be the case), this region is outside of the primary breeding range of these widely-distributed grassland species." Ex. 6, p. 5.

[38]The FWS has also commented that "[d]isplaced wildlife will move into adjacent habitats and likely find that they are already occupied by more fortunate members of their species, and competition for food and nesting locations will simply mean that the displaced ones die or fail to reproduce..." 4/21/03 Rider e-mail, Ex. 71, attached file: chIVcomments.wpd, p. 1.

of NWP programs under the CWA with respect to an endangered species of owl, and to determine that use of such NWPs had no significant impact before authorizing projects under those permits:

> ... Defendants' scope of analysis ... is inadequate to measure the impact of implementing the NWP program under which thousands of projects will be authorized. The kind of impact statement required depends upon the kind of federal action being taken.

The court concluded: "At a minimum, this Court must order the Defendants to take a 'hard look' at the cumulative impact of the NWP program, ... and determine that the use of these permits in this region has no significant impact." Id. at 1114 (emphasis added). Similarly, here, the drafters of the DEIS must consider the cumulative impact of all past, present, and reasonably foreseeable future MTM/VF operations to be authorized under NWP 21. When all such cumulative impacts are considered, the inescapable conclusion is that such impacts exceed the "minimal impact" threshold for authorization under NWP 21 for any MTM/VF operation.

Thus, the DEIS itself, relying on EPA's own study, clearly demonstrates that the cumulative adverse environmental impacts of mountaintop removal mining in Appalachia are more than "minimal." The riparian and forest ecosystems which have already been and will continue to be destroyed are among the most biologically rich and genetically diverse in the nation. The magnitude of the destruction in terms of forest acreage, stream-miles, and lost wildlife populations, habitat, and species is enormous. The destruction is permanent, causing a "fundamental" shift from a forest ecosystem to a "grassland habitat." Such mining is likely to continue or increase in the future. The evidence in this DEIS that MTM/VF impacts are more than minimal on a cumulative basis is simply overwhelming. Section 404(e) of the CWA prohibits the use of NWPs unless the activity "will have only minimal cumulative adverse effect on the environment." The DEIS proves that mountaintop removal mining activities cannot satisfy this requirement in any case. The FWS has similarly observed:

> [H]ow will the Corps justify a "significant degradation" determination? Corps issuance of any permit means that the Corps has determined that the project will not result in "significant degradation" as defined by the 404(b)(1) guidelines; the significant degradation test trumps even the public interest review and the practicable alternatives test. To our knowledge, there is no other single industry or activity in the country that receives Section 404 authorization for the total elimination of waters of the United States on the scale that stream destruction occurs with mountaintop mining... Are we seriously going to propose that some sort of "compensatory mitigation" can be fabricated that would truly replace the lost functions and values of the destroyed miles of streams, to the degree that we could consider impacts to be less than minimal? How many miles of stream loss a year are we going to be willing to accept under the cumulative impact test required for nationwide permits? What precedents do these decisions set for attempts to limit the loss of streams resulting from other types of activities authorized by other nationwides?

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10/30/02 Tibbott e-mail, Ex. 45.

Individual permits must be used for every mine because every mine will contribute to deforestation and stream destruction. Therefore, no MTM/VF activities are eligible for NWPs, and all of the alternatives considered by the DEIS are illegal because they all contemplate permitting future MTM/VF activities under NWP 21.

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2. The DEIS Violates the Clean Water Act, Because Its Studies Show that MTM/VF Activities Cause Violations of the WV Water Quality Standard for Selenium, But the DEIS Does Nothing to Address Those Violations.

The DEIS shows that MTM/VF activities cause violations of WQSs for selenium in West Virginia. The DEIS fails to propose any remedies for those violations. Federal agencies cannot take any action that would violate WQSs. Therefore, all of the proposed alternatives in the DEIS are illegal because they would permit activities which violate WQSs.

The DEIS states:

> The data from this report indicate that MTM/VFs increase concentrations of several chemical parameters in streams. Sites in the Filled category had increased concentrations of ... total selenium... Comparisons to [Ambient Water Quality Criteria (AWQC)] were performed with a subset of the total data set as explained in USEPA (2002a). Selenium concentrations from the Filled category sites were found to exceed AWQC for selenium at most (13 of 15) sites in this category. No other site categories had violations of the selenium limit.

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DEIS III.D-6. The DEIS therefore concludes: "The existence of selenium at concentrations in excess of AWQC at most of the filled sites indicates a potential for impacts to the aquatic environment and possibly to higher order organisms that feed on aquatic organisms." DEIS III.D-7.[39]

The "West Virginia Stream Chemistry Study," dated April 8, 2002 and set forth in Appendix D to the DEIS (*hereinafter* "DEIS Chem. Study"), puts the matter more bluntly, explaining that "...MTM/VF mining is associated with violations of the stream water quality criteria for total selenium. Selenium violations were detected in each of the five study watersheds and all were at sites in the category Filled, downstream from MTM/VF operations. No other site categories had violations of the selenium limit." DEIS Chem. Study 2. This study

[39] *See also*, DEIS III.D-18: "As discussed in the USEPA Stream Chemistry Report, several chemical parameters have been found to be elevated in stream surface water downstream from filled/mined area (USEPA 2002a). Chemical parameters elevated in excess of ambient water quality criteria may impair the aquatic productive [sic] of constructed streams."

also finds that "[t]he selenium data indicate numerous violations of the West Virginia stream water quality criterion related to MTM/VF mining." Id. at 47.[40] Indeed, the EPA-recommended and West Virginia-adopted stream water quality criterion for selenium is no more than 5 ug/L (DEIS Chem. Study 73), and selenium levels downstream from "Filled sites" were up to 10 times that amount. Id. at 75. The study elaborates that selenium is "highly toxic" in amounts "slightly greater" than those found naturally, and is "strongly bioaccumulated in aquatic habitat." Id. at 73.

The CEQ regulations provide that each EIS "shall state how . . . decisions based on it will or will not achieve the requirements of . . . other environmental laws and policies." 40 C.F.R. § 1502.2(d). Under NEPA, "each agency must mesh the requirements of NEPA with its own governing statute as far as possible." Sierra Club v. Sigler, 695 F.2d 957, 967 (5th Cir. 1983); Calvert Cliffs, 449 F.2d at 1115 & n.12. Here, the CWA governs the establishment and enforcement of state water quality standards. It contains "statutory commands the Corps must integrate with the requirements of NEPA." Sigler, 695 F.2d at 967. Thus, the DEIS in this case must be reviewed not only for adherence to NEPA, but for adherence to the CWA's commands. Id.

All federal agencies have an obligation under the Clean Water Act to comply with state water quality standards. National Wildlife Federation (NWF) v. U.S. Army Corps of Engineers (COE), 132 F. Supp.2d 876, 889 (D.Or. 2001). It is arbitrary and capricious for a federal agency to acknowledge that such standards are being violated and that its facility is partly responsible for such violations, but fail to take action to comply with those standards. Id. at 895. As the court held in NWF v. COE: "The compliance of the Corps with its legal obligations under the [CWA] is a relevant factor in determining whether the final agency actions taken by the Corps in the [Records of Decision (RODs)] were arbitrary and capricious... [under the APA]." Id. at 890. While that case involved a dam operated by the COE, the same principle should apply to permits issued by the COE for valley fills, since those fills are directly connected to violations of state water quality standards for selenium.

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Further, pursuant to 40 C.F.R. § 1502.25(b), the EIS is required to identify all federal permits that the project requires in order to comply with federal law. Therefore, a court reviewing the Final EIS would be obligated to decide, under NEPA, whether the selenium

[40] *See also*, 3/27/02 Bryant e-mail, Ex. 22: "The selenium data clearly show 'hot spots' with higher concentrations of selenium in each of the five watersheds and located downstream of "Filled" sites ONLY. There are 66 violations of the stream water quality criteria identified and each is at a Filled site. No other category of site had violations of selenium! I don't believe anyone needs a statistician to prove that MTM/VF mining causes violations of stream criteria for selenium. On top of that, the WV Geologic Survey data indicate that the coals in that region are high in selenium." (capitalization in original). *See also*, 1/02/03 Tibbott e-mail, Ex. 57: "[B]elow fills the ambient water quality criterion for selenium concentration is exceeded consistently..."

discharges are properly permitted under the CWA, including the state water quality certification under Section 401 of the CWA. As the court in Dubois v. U.S. Dept. of Agriculture, 102 F.3d 1273, 1295-1296 (1st Cir. 1996), explained:

> Regardless of whether any of the remedies provided in the CWA would be available to Dubois in light of his asserted failure to provide proper notice of his intent to sue, this court would still have the authority and the obligation to decide, under NEPA, whether an NPDES permit is required in this case. This is because ... NEPA requires the Forest Service to identify in its EIS all federal permits that the project needed in order to comply with applicable federal law.

(emphasis added).

Given the serious impacts of mining on water quality, an EPA official stated in November 2002 that "I am confident that the EIS will recommend further studies; and recommend *monitoring at a minimum for selenium, sufates and conductivity . . . everywhere in Appalachia.*" Rider 11/7/02 e-mail, Ex. 47. In fact, however, the DEIS does not recommend any further studies or monitoring for these chemicals. DEIS IV.B-5 to IV.B-6.

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It is arbitrary and capricious for the DEIS to acknowledge that the MTM/VF operations under any of the alternatives would violate state water quality standards for selenium, but fail to consider any remedies for these contemplated violations or any alternatives which do not violate state water quality standards for selenium. All of the alternatives contemplate the illegal federal permitting of actions which violate state water quality standards. Under NEPA, the DEIS must mesh the requirements of NEPA with those of the CWA as far as possible. The compliance of the state and federal agencies with their legal obligations under the CWA is a relevant factor in determining whether issuance of the EIS without addressing acknowledged violations of state water quality standards by conduct which is the subject of the EIS is arbitrary and capricious under the APA. Further, it is a violation of NEPA to issue an EIS which fails to identify all federal permits necessary to comply with federal law.

3. The DEIS Violates SMCRA, Because It Admits that MTM/VF Activities Violate OSM Regulations Regarding Soil Practices, But Does Nothing to Address Those Violations.

The DEIS acknowledges that current soil practices violate OSM regulations, because the post-mining soil supports lower quality vegetation than did the existing pre-mining soil. The DEIS fails to propose any remedies for those violations. Therefore, all of the proposed alternatives in the DEIS are illegal because they would permit activities which violate OSM regulations promulgated pursuant to SMCRA. *See* 30 C.F.R. § 816.22(b) (requiring soil medium to support revegetation); §§ 816.22(c)(2)(ii), 816.22(d)(1)(ii) (prohibiting excessive compaction that interferes with revegetation).

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The DEIS states:

> The information in Table III.B-2 is corroborated by the experience of reclamation personnel and is reflected in West Virginia's recently proposed commercial forestry regulations. In estimating the likely quality of reclamation to be obtained under these regulations, we must recognize the fact that the current regulations (which have been in place since May 16, 1983) require that selected overburden substitutes for soil be "equal to, or more suitable for sustaining vegetation than the existing topsoil, and the resulting soil medium is the best available in the permit area to support revegetation." Also, soil materials are to be redistributed in a manner that prevents excessive compaction of the materials. Be this as it may, the reality of reclamation in Appalachia is that selective overburden handling is rarely practiced beyond that required to keep highly toxic material out of the rooting zone; excessive compaction is commonplace... Production of soils that will support commercial forestry as part of mountaintop mining requires selective overburden handling and replacement procedures on a scale that has **never been carried out in Appalachia**.

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DEIS III.B-15 (citation omitted) (emphases added).

Although the DEIS proposes a "mitigation measure" of producing a "best management practices" manual which would "encourage" reforestation, the practices suggested by this manual would be purely voluntary and the DEIS points to nothing to suggest that such practices would be followed (as addressed more fully in section II.I.2. of these comments). The DEIS proposes no remedies for this acknowledged, ongoing, systemic violation of the OSM regulations. Therefore, for the same reasons discussed above regarding violations of WQSs for selenium, it is arbitrary and capricious for the DEIS to acknowledge that the MTM/VF operations under any of the alternatives would violate OSM soil practice regulations, but fail to consider any remedies for these violations or any alternatives which do not contemplate violations of the regulations.

H. The DEIS Violates NEPA and SMCRA by Assuming that *Changing* the Stream Buffer Zone Rule Is Part of the "No Action" Alternative.

All four of the alternatives considered in the DEIS, including the "no action alternative" and the three "action alternatives," contemplate *changing* the SBZ rule so that the rule is weakened or eviscerated. No alternative contemplates keeping the SBZ rule in place as it currently exists. This failure to consider any alternative which includes the option of *not* changing the SBZ rule violates NEPA, under which the EIS must "[i]nclude the alternative of no action." 40 C.F.R. § 1502.14(d). That is, by illegally including a rule *change* in the "no action alternative," the DEIS illegally side-steps the fundamental requirement of NEPA to consider the benefits of leaving the rule unchanged. Rather, the DEIS assumes that under all alternatives spoil can be placed in streams and contains no analysis of the benefits of maintaining the current level of protection afforded by the SBZ rule. Further, the DEIS's assumption that changing the SBZ rule is part of the "no action alternative" violates SMCRA, which requires OSM to prepare an

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EIS on significant changes to the SMCRA regulations. *See, e.g.*, DEIS II.C-63 ("SMCRA Section 702(d) states that SMCRA rulemaking is a major Federal action requiring NEPA compliance." (emphasis in original)).[41]

> The DEIS describes the SBZ rule as it currently exists as follows:
>
> SMCRA regulations at 30 CFR 816.57, known as the stream buffer zone (SBZ) rule, preclude impacts within 100 feet of intermittent and perennial streams absent a finding that 1) mining activities will not cause or contribute to a violation of applicable state or Federal water quality standards, and will not adversely affect the water quantity and quality or other environmental resources of the stream; and 2) if there will be a temporary or permanent stream-channel diversion, it will comply with specific requirements applicable to the construction of diversions.

DEIS II.C-10.[42] However, in describing the "No Action Alternative," the DEIS states:

> Historically, OSM has not viewed, applied, or enforced the buffer zone regulation to prohibit mining activities within the buffer zone if those activities would have less than a significant effect on the overall chemistry and biology of streams, i.e., the overall watershed or stream below the activity. Therefore, excess spoil fill construction within the buffer zone has been allowed if a demonstration of no significant effect on downstream water quality was made by the permit applicant to the satisfaction of the SMCRA regulatory authority. This interpretation resulted because to interpret the SBZ rule as an absolute prohibition for constructing valley fills in streams would counter other statutory provisions. SMCRA recognized the necessity of excess spoil fills in SMCRA Section 515(b)(22), and the only available location for excess spoil placement in steep slope mining is in valleys adjacent to the mining area. These valleys may contain headwater streams...

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[41]The OSM "Vision" statement states: "The NEPA compliance requirements for proposed SMCRA regulation would be satisfied by concurrent publication of the draft EIS with similar alternatives to the proposed regulations." Ex. 9, p. 3. While publication in the DEIS of alternatives "similar to" proposed rule changes would *not* satisfy NEPA, the DEIS does not even do that. Rather, it merely states that "OSM is currently preparing a draft proposed rule that would amend the rules at 30 CFR 816.57 and 817.57 to clarify the SBZ requirements," (DEIS II.C-34), and articulates a very general description of the contemplated forthcoming proposal. This description of the contemplated SBZ rule change falls far short of NEPA compliance for SMCRA rule changes.

[42]*See also*, DEIS II.D-2: "The existing SBZ rule provides that no land within 100 feet of a perennial or intermittent stream be disturbed by surface mining activities unless the SMCRA regulatory authority specifically allows mining activities closer to, or through, such a stream."

> **OSM is currently preparing a draft proposed rule that would amend the rules at 30 CFR 816.57 and 817.57** to clarify the SBZ requirements. These amended rules would more closely align with the principal statutory basis for the rule [30 U.S.C. 1265(b)(10) and (b)(24)]. Exemptions to the SBZ requirements would only be granted upon a demonstration by the coal operator, to the satisfaction of the SMCRA regulatory authority, that encroachment into the SBZ is necessary and that disturbances to the prevailing hydrologic balance at the mine-site and in associated offsite areas have been minimized.

DEIS II.C-34 to C-35 (emphases added).[43]

OSM's interpretation of the existing SBZ rule is incorrect, and is directly inconsistent with the interpretation given by the United States before the 4th Circuit in Bragg. In its brief, the United States stated:

> By specifying that mining activities must seek to protect water resources "at the mine site and in associated offsite areas," Congress made clear that water resources must be protected where mining activities occur and not only at downstream portions away from the mining sites. ...
>
> By expressly and unambiguously applying to the stream segments where mining activities are proposed, the buffer zone cannot be satisfied by a finding that the stream's environmental resources are protected at some downstream point. ...
>
> [V]alley fills that disturb intermittent or perennial streams may be approved only if there is a finding that activity will not adversely affect the environmental resources of the filled stream segment. ...
>
> [T]he district court correctly held that findings made in applying the CWA 404(b)(1) guidelines cannot be used as a substitute for the findings required by the stream buffer zone rule.

Brief for the Federal Appellants, 4th Cir., No. 99-2683, April 17, 2000, pp. 40-43. OSM's interpretation of the SBZ rule is therefore erroneous as a matter of law, and is an arbitrary

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[43] *See also*, DEIS II.B-7, regarding the "No Action Alternative" ("OSM initiated a SMCRA regulatory program enhancement to amend and clarify the stream buffer zone (SBZ) rules at 30 CFR 816.57 and 817.57."); DEIS II.B-19, regarding the "No Action Alternative" ("SMCRA buffer zone (SBZ) subject to interpretation."); DEIS II.C-1, regarding the "No Action Alternative" ("Current SBZ rule-making (OSM)"); DEIS II.D-2, regarding "Alternatives Considered but Not Carried Forward in this EIS," ("Use of the [existing] OSM SBZ rule was considered to implement the alternatives establishing valley fill restrictions for certain stream segments [but not carried forward].).

reversal of its prior position.

All three of the "action alternatives" also contemplate weakening or eviscerating the SBZ rule. Regarding Alternative 1, the DEIS states: "SMCRA SBZ rule inapplicable to excess spoil in waters of the U.S. due to CWA Section 404 analysis." DEIS II.B-19. Regarding Alternatives 2 and 3, the DEIS states: "The No Action Alternative discusses ongoing rule-making to amend and clarify the SBZ rule. This action could also include later OSM consideration of additional amendment to the SBZ rule to increase consistency with the CWA Section 404 program, if appropriate and supported by SMCRA." DEIS II.C-36.[44]

Thus, all four of the alternatives considered in the DEIS, including the "no action alternative," contemplate changes to the existing SBZ rule that would either weaken ("no action alternative") or explicitly (alternative 1) or implicitly (alternatives 2 and 3) eviscerate the rule. The DEIS therefore frustrates Congressional will and illegally evades the requirements of NEPA to consider "the alternative of no action" and compare the benefits of stream protection as it exists with any contemplated changes. The DEIS also illegally evades the SMCRA requirement that OSM prepare an EIS regarding significant changes to the SMCRA regulations. Finally, the DEIS's interpretation of the existing SBZ rule is incorrect and directly inconsistent with the interpretation adopted by the United States in Bragg.

I. The DEIS Violates NEPA Because it Fails to Adequately Analyze the Effectiveness of Mitigation Measures.

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The DEIS violates NEPA by failing to adequately analyze the effectiveness of proposed mitigation measures. Specifically, first, the DEIS relies on the effectiveness of in-kind mitigation while admitting that on-site stream reconstruction has never been successfully accomplished. Second, the DEIS relies solely on a BMP manual to "encourage" mine operators to reforest their lands, without showing that the manual, by itself, will have any meaningful impact on adoption of PMLUs that involve reforestation.

"Implicit in NEPA's demand that an agency prepare a detailed statement on 'any adverse environmental effects which cannot be avoided should the proposal be implemented,' 42 U.S.C. § 4332(2)(C)(ii), is an understanding that an EIS will discuss the extent to which adverse effects can be avoided." Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351-52 (1989) (citation omitted). "A mere listing of mitigation measures is insufficient to qualify as the reasoned discussion required by NEPA." Northwest Indian Cemetery Protective Assoc. v. Peterson, 795 F.2d 688, 697 (9th Cir. 1986) (citation omitted). "Without analytical detail to

[44] While it is not clear what "additional amendment" might be considered under Alternatives 2 and 3, it appears that such amendment would be similar to that considered under Alternative 1 to make the SBZ rule "inapplicable to excess spoil in waters of the U.S. due to CWA Section 404 analysis," since the "addition amendment" would have the same purpose to "increase [SBZ rule] consistency with the CWA Section 404 program."

support the proposed mitigation measures, we are not persuaded that they amount to anything more than a 'mere listing' of good management practices." Idaho Sporting Congress v. Thomas, 137 F.3d 1146, 1151 (9th Cir. 1998).

In the present case, the DEIS itself demonstrates that its own reliance on in-kind mitigation is not justified or supported by the history of such mitigation attempts or its own findings regarding the likelihood of success, and the proposed BLM manual is the epitome of a "mere listing of good management practices" because its suggested practices are non-mandatory and unenforceable and the DEIS points to nothing to suggest that the manual's existence will increase forestry PMLUs.

1. The DEIS Relies on the Effectiveness of In-kind Mitigation While Admitting That On-site Stream Reconstruction Has Never Been Successfully Accomplished.

The DEIS relies heavily on the future effectiveness of in-kind[45] mitigation to reduce environmental impacts. "The alternatives proposed, including the No Action Alternative, assume successful mitigation through on-site reclamation and on-site and off-site mitigation." DEIS IV.B-8. "In-kind mitigation must restore or create headwater stream habitat on the reclaimed mine area to replicate the functions lost from direct stream loss." DEIS IV.B-9. "In most situations, under all alternatives, some type of on-site restoration, as a component of reclamation, would be included as part of or all of the mitigation needed to replace lost functions from headwater streams." Id. "The functions of streams lost through filling can require substantial mitigation as compensation." DEIS II.C-47. "Mitigation for lost stream functions is important to ensure that significant degradation to waters of the U.S. does not occur." DEIS II.C-49. "Both on-site and off-site mitigation are likely necessary to insure that only minimal individual and cumulative impacts occur under all of the alternatives considered..." DEIS IV.I-12.

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FWS' reviewer of the DEIS commented that "...the ability of compensatory mitigation to reduce impacts to minimal levels is the linchpin of each of the alternatives." 11/13/02 Tibbott e-mail, Ex. 49, Comments, p. 1. But she stated that this mitigation "is an untested, unproven concept, and many believe it can't be accomplished." Id. This is a "fatal flaw in our alternatives framework." Id. The FWS reviewer further commented: "[I]t is difficult if not impossible to reconstruct free flowing streams on or adjacent to mined sites ... [due to] the inability to capture sufficient groundwater flows necessary to provide a constant source of flow for the new stream." 11/15/02 Tibbott e-mail, Ex. 50, Comments, p. 1. *See also*, 1/02/03 Tibbott e-mail, Ex. 57, p. 2: "It is unlikely that streams and the ecological functions they contribute to the watershed can be replaced through mitigation..."

The DEIS' reliance on effective in-kind mitigation is wildly irrational and directly

[45]"[T]here is a preference for onsite (on the same site as the habitat being impacted) and in-kind (same habitat as that being impacted) compensation." DEIS II.C-50.

contradicted by the DEIS's own findings regarding the history of such mitigation attempts and the state of the existing technology. That is, functioning headwater streams have never been successfully created in MTM/VF areas, and the technology to create them does not exist. Rather, attempts to create flowing streams have resulted only in creating standing ponds and "linear groin ditches" (DEIS III.D-20) which cannot replace the important functions of headwater streams,[46] so that mining companies often resort to simply paying fees to bury the headwaters and destroy the stream ecosystems. The DEIS explains:

> [R]ecreating headwater streams onsite to functionally replace those directly lost from filling operations is difficult and not often undertaken as compensatory mitigation. Experience with the technology required to create streams that match those directly lost through valley fills is very limited. To recreate intermittent or perennial streams onsite, the channel must intercept local groundwater. The potential channel locations and elevations may not coincide with prevailing geologic structure (dip or hydraulic gradient) making local groundwater horizons difficult to capture for establishing stream flow. While proven methods exist for larger stream channel restoration and creation, the state of the art in creating smaller headwater streams onsite has not reached the level of reproducible success required for these efforts to be reasonably relied upon programmatically as an option for full compensatory mitigation. Consequently, other forms of compensatory mitigation are employed and other sites outside the footprint of the fill are often utilized to offset unavoidable aquatic impacts of valley fill operations. Mitigation sites (on- or offsite) require a conservation easement so that protection of the aquatic resources is assured in perpetuity. Because mining companies often lease mine sites and may not own or control offsite areas, this easement requirement can sometimes pose a significant barrier to the location of suitable mitigation opportunities–either onsite or offsite. These factors can also result in greater consideration of in lieu fee arrangements whereby mitigation is accomplished through monetary payment for aquatic conservation/restoration projects identified by government resource agencies.

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DEIS II.C-50 (citation omitted) (emphasis added). The DEIS further explains:

> Stream creation on filled areas is very difficult in general due to the inability to capture sufficient groundwater flows necessary to provide a source. There is some suggestion that perennial flow could be established on a contour between the fill and the native rock

[46]The DEIS acknowledges the important and unique functions of flowing headwater streams: "When energy source is altered or removed in the upstream reaches, downstream biological communities are also affected. The value of headwater streams to the river ecosystem is emphasized by Doppelt, et al. (1993): 'Even where inaccessible to fish, these small streams provide high levels of water quality and quantity, sediment control, nutrients and wood debris for downstream reaches of the watershed. Intermittent and ephemeral headwater streams are, therefore, often largely responsible for maintaining the quality of downstream riverine processes and habitat for considerable distances.'" DEIS III.C-12. *See generally*, DEIS II.C-1 to C-12.

by the use of some type of impermeable liner. However, no demonstration projects have yet been performed to validate this hypothetical design... [A]t best, streams recreated on mined lands would be expected to have only intermittent flow... [S]everal chemical parameters have been found to be elevated in stream surface water downstream from filled/mined areas. Chemical parameters elevated in excess of ambient water quality criteria may impair the aquatic productive [sic] of constructed streams... During the development of this EIS, technical representatives from OSM and from West Virginia have suggested that groin ditches constructed along the edges of fills may represent an opportunity for in-kind replacement of streams with an intermittent or ephemeral flow regime. To date, no drainage structures observed appear to have successfully developed into a functional headwater stream.

DEIS III.D-18 to D-19 (citations omitted) (emphasis added). The DEIS continues:

> [T]o date functioning headwater streams have not been re-created on mined or filled areas as part of mine restoration or planned stream mitigation efforts. Most on-site mitigation construction projects have resulted in the creation of palustrine wetlands that resembled ponds. Some of these created wetlands are isolated from other surface water systems while others occur in drainage channels which connect to the original stream system at some point. On some fills, linear-shaped wetlands may develop in groin ditches... Functions not restored include habitat for aquatic organisms that require lotic or flowing-water conditions.

DEIS III.D-20 (emphasis added). The DEIS further observes: "If future mitigation mirrors past ... reclamation practices ..., successful restoration of habitat for organisms requiring lotic (flowing) conditions may be very limited." DEIS IV.B-9.[47]

Thus, the DEIS's reliance on the effectiveness of in-kind mitigation is arbitrary and capricious given its simultaneous admission that on-site stream reconstruction has never been successfully accomplished and is not likely to be accomplished, and may in fact be impossible, under any alternative. Where, as here, an agency fails to support its conclusion that its proposed mitigation measures will perform as expected in the specific environment contemplated in the EIS, the agency's consideration of mitigation measures is inadequate to meet the requirements of NEPA. Blue Mountains Biodiversity Project v. Blackwood, 161 F.3d 1208, 1214 (9th Cir. 1998).

2. The DEIS Relies Solely on a BMP Manual to "Encourage" Reforestation Without Any Analysis of Whether It Is Likely to Do So.

[47]Furthermore, the Corps has no authority under the Clean Water Act to use mitigation to offset the loss of jurisdictional waters of the United States, especially where the effect of this mitigation offset is to convert jurisdictional waters such as perennial streams to potentially non-jurisdictional waters such as "groin ditches" or "wetlands isolated from other surface water systems." DEIS III.D-20.

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In addition to stream reconstruction, the other mitigation tool envisioned by the DEIS is a BMP manual, which would attempt to "encourage" reforestation, although forestry PMLUs would remain purely voluntary under all of the alternatives. This proposed "mitigation measure" is the epitome of a "mere listing of good management practices" (Idaho Sporting Congress, 137 F.3d at 1151) which violates NEPA. Specifically, it fails to satisfy the NEPA requirement that an EIS adequately analyze the effectiveness of proposed mitigation measures. The DEIS contains no analysis of whether the manual will actually increase reforestation.

In the absence of such analysis, there is good reason to believe that it would not. The DEIS finds that reforestation is currently not the usual practice due to economic disincentives and technological barriers.[48] As the FWS has observed:

> The EIS indicates that landowners would be expected to support reforestation because of its long-term benefits. Because of the lack of success of the reforestation initiative that was begun several years ago in Kentucky, we do not believe landowners or the mining industry will show significant support for anything more than is required. The EIS should only provide realistic potential solutions.

1/02/03 Tibbott e-mail, Ex. 57, pp. 1-2. The EPA similarly stated in June, 2002:

> [PMLU] studies suggest that, in general, post-mining development has not occurred as envisioned when variances are requested from the requirements to return the land to a condition capable of supporting its prior use. Actions to ensure that PMLU development occurs as envisioned ... must be included as commitments within the EIS.

19-2-2

6/10/02 Hoffman e-mail, Ex. 29, EPA Issues - MTM/VF EIS; 6/14/02 Rider e-mail, Ex. 31. As a result, the DEIS's reliance upon the supposed willingness of the mining industry to voluntarily undertake costly reforestation is unrealistic and unsupported.

Currently, disincentives and barriers to reforestation are the norm. "[T]he use of grasses and legumes serves as the low cost, low-risk option for bond release. Even when the reclamation plan calls for the planting of trees, excessive compaction of the rooting medium, which severely reduces tree growth, is the norm." DEIS III.B-9. "The predominant PMLU has included a bias towards salvaging ... soil materials that provide favorable chemical conditions for the growth of grasses and legumes, but have a negative impact on forest regeneration." DEIS III.B-11. "Production of soils that will support commercial forestry as part of mountaintop mining requires selective overburden handling and replacement procedures on a scale that has never been carried

[48]In fact, even "flat land" PMLUs are not being completed. "This investigation found that many sites are not being developed as envisioned when PMLU variances are granted, and that the supply of flat land seems to outweigh the demand." Ex. 6, p. 4.

out in Appalachia."[49] DEIS III.B-15 (emphasis added). Cindy Tibbott (USFWS) has stated, and William Hoffman (USEPA) has agreed, that:

> I am very concerned about running all of the Alternatives without a 0% forest recovery scenario ... [because] re-establishing native hardwood forests on reclaimed mines is still experimental. We don't know what the long-term success will be. Even if hardwood forests can be re-established, it should be intuitively obvious that they'll be a drastically different ecosystem from pre-mining forests for generations, if not thousands of years...

Ex. 5 (emphasis added).[50]

Despite this lack of current reforestation, the DEIS insists: "A BMP manual emphasizing the latest cost-effective reforestation techniques could encourage forestry-related PMLUs." DEIS II.C-76. However, the DEIS admits that "the only difference between the No Action Alternative and the development and use of BMPs as part of Alternatives 1, 2, and 3 is that this action anticipates broader acceptance and use of the BMPs to improve reclamation to a forest land use." DEIS IV.C-8. Thus, the DEIS simply assumes that the BMP manual will effectively encourage reforestation, without any support for this assumption and without any requirement for forestry as a PMLU, and in the face of the acknowledged fact that reforestation is not currently practiced due to significant technological barriers and economic disincentives. The DEIS's analysis of the BMP manual as a proposed mitigation measure is therefore insufficient to meet the requirements of NEPA.

19-2-2

J. The DEIS' Analysis of the Economic Impacts of Mining Restrictions Is Inadequate

The DEIS does not contain any substantial analysis of the economic impacts of different fill restriction alternatives. The United States spent large amounts of money on a two-phase economic study. The Phase 1 study by Resources Technology Corporation (RTC) analyzed the impact of proposed regulatory changes on the amount of mineable coal reserves. That study cost about $200,000. The Phase 2 study by Hill & Associates (H&A) used the RTC results to estimate the market impacts on coal prices, coal production, electricity generation and electricity pricing. That study cost over $300,000.

11-9-2

[49] *See also*, Ex. 6, p. 4 ("Current reclamation practices result in conditions that discourage the re-establishment of trees."); Id., p. 5 ("The study found no evidence that native hardwood forests, including their herbaceous understory component, will eventually recolonize large mountaintop sites using current reclamation methods.").

[50] *See also*, Ex. 6, p. 6: "Even if reclamation practices are changed, we must still consider the recovery of a functional mesophytic forest ecosystem as a long-term ecological experiment with uncertain results."

However, the Steering Committee rejected those studies, thereby throwing away an investment of over one-half million dollars, purportedly because they "are no longer essential for portraying the differences between the alternatives being analyzed in the EIS. The committee agreed that the studies would have been relevant had the original restriction alternatives proven to be viable alternatives, but since they are not viable, revising the studies is not essential for completion of the EIS." 9/10/02 Hoffman e-mail, Ex. 40, Attachment. The Steering Committee also believed that the findings in those studies "can be dismissed by credible agency qualifications statements" in the DEIS. Ex. 41, Agenda, p. 2.

In fact, what really happened is that the development agencies on the Committee rejected these studies because they did not like the results, which showed that fill restrictions would not have serious economic impacts. The DEIS explains that the studies found that "in most situations the restriction would change the price of coal to less than one dollar per ton," and that "[t]he price of electricity would continue to rise approximately 1 to 2 percent across the scenarios; the impacts due to restrictions will have little effect on price." DEIS App. G, p. 6 (*summary of Phase II Economics study by Hill and Associates*) (*emphasis added*). Even after adjusting the model inputs to be more favorable to the coal industry, the change in the price of coal rose to only two dollars a ton. Id. at 7. Morgan Worldwide Consultants, Inc. (MWCI) conducted an analysis of the RTC Phase I and H&A Phase II economic reports. Ex. 60, Attachment. The MWCI analysis stated:

11-9-2

> This letter report prepared by [MWCI] is an analysis focused on work completed sine 1999 regarding the economic impacts of restriction on [MTM/VF] operations in Appalachia. It also addresses the current attempt to essentially disregard this work and replace it with unsubstantiated data to produce different results within the next two months...
>
> RTC ... endeavored to estimate the effect of various valley fill restrictions on the quantity of coal potentially available from mining as objectively as possible, going to great lengths to prevent human bias... The results of this unbiased approach[] are being questioned, and OSM proposes to solicit input from coal industry representatives. MWCI has reviewed the Phase 1 work and determined that it is premature to dismiss the results portrayed in the Final Phase 1 Report...
>
> The methodologies and results of the H&A Phase 2 work are not in question, but H&A has been requested by OSM to conduct a sensitivity analysis using input solicited from coal industry representatives. MWCI ...questions the validity of information supplied by coal industry representatives on such short notice...

Id., p. 1. The MWCI analysis continued:

> As stated in the H&A Final Report, "...it is evident that the electricity prices are quite insensitive to the MTM/VF restrictions, showing differences of only 1%-2%, or 3% at the maximum." ... Consistent with the results obtained with coal tonnage and direct employment, the anticipated 1.15% increase in the base case from $0.01971/KW-Hr in

2002 to $0.02276/KW-Hr in 2010 overshadows price changes induced by potential valley fill restrictions...

Both [RTC and H&A] acted under the direction and guidance of the EIS Steering Committee..., and there is no reason to question the integrity of the results obtained... The EIS work has already spanned years, and RTC and H&A have had the benefit of input from many qualified professionals during the preparation of their Phase 1 and Phase 2 reports, respectively. Rather than replacing these years of effort with a couple of harried months to produce a different answer, spend the time and money understanding and qualifying the results produced to date.

Id. at 8. OSM summarily dismissed the MWCI Report, stating: "We just don't have sufficient time to deal with this report – particularly when you consider all the comments on the EIS Chapters that must be addressed in the next two weeks. I don't see that finalizing [the MWCI] report is a high priority task." 1/10/03 Robinson e-mail, Ex. 60.

A January 16, 2003 memorandum identified a series of "key issues that we anticipate will be raised when the DEIS is published for public review," including the following: "As part of the studies conducted in conjunction with the DEIS were studies to assess the economic impacts that would result from implementing actions considering limits on the size of valley fills. Information from the economic studies ... suggest that limits on the size of fills will have only minimal economic consequences on coal and electricity prices. Since smaller fills would seem to coincide with reduced environmental impacts, why is the current version of the DEIS not recommending such limits?" Ex. 62 (emphasis added). That is an excellent question, for which the DEIS provides no adequate answer. The DEIS Executive and Steering Committees, at the insistence of OSM, summarily rejected the findings of the detailed economic studies – commissioned by the Steering Committee itself and conducted over years of study at a cost of over half a million dollars – because the results of the study did not support the OSM's "Vision" of "streamlining" the MTM/VF permitting process. The CEQ regulations warn that a NEPA document is not to be used to justify a decision already made. 40 C.F.R. § 1502.2(g). Thus, "an agency may not define the objectives of its action in terms so unreasonably narrow that only one alternative ... would accomplish the goals of the agency's action, and the EIS would become a foreordained formality." Citizens Against Burlington, 938 F.2d at 196; Muckleshoot, 177 F.3d at 812-14. Because the Phase I and II economic studies contradicted the decision already made by the OSM, the studies were summarily rejected. This rejection violates the requirements of NEPA.

11-9-2

K. The DEIS Underestimates Cumulative Impacts by Ignoring Valley Fills Prior to 1985 and Failing to Include All Watershed Impacts

9-2-2

The valley fill inventory in the DEIS is limited to the years 1985 to 2001, even though states in the study area began permitting valley fills under SMCRA in 1981 and 1982. DEIS III.K-14. The basis for the 1985 cutoff date is that "data from years immediately following approval of a permanent program in a state shows a high level of permitting activity representing

a 'repermitting' requirement rather than useful information on the trends of permitting new mines." Id. Thus, the DEIS assumes that it is not possible to filter out "repermitted" mines prior to 1985, and therefore had to exclude all mines permitted before 1985. However, the DEIS filtered out "repermitted" mines after 1985. Id. No reason is given why the same filtering could not have been done for repermitted mines before 1985. As a result of this error, cumulative fill impacts were underestimated.

In addition, those impacts were underestimated because the DEIS defined the watershed impacted by a valley fill to include only "the upland area above each fill toe." DEIS III.K-38. This does not include the areas downstream or in other watersheds that are impacted by a valley fill. 11/12/02 Tibbott email, Ex. 48. Furthermore, in measuring those impacts, the DEIS only considered actual stream loss, and excluded ephemeral stream areas. DEIS App. I, pp. iii-iv. FWS commented that:

9-2-2

> [I]t is painfully clear that they are looking only at the fill footprint. First, I would say that we must look at much more than the acres of stream lost or buried by fill. Stream loss and other impacts can extend well upstream and downstream of the footprint of valley fills and sometimes even outside the drainage that is directly impacted. This type of trend analysis does not provide a comprehensive or "final measurement for evaluating impacts from valley fill construction" and can predict only a fraction of "the overall impact on the environment."
>
> –In summary, this "fill inventory" will grossly underestimate the acreage impacted by valley fills and does nothing to consider how areas upstream and downstream will be impacted.

Ex. 48.

L. The DEIS' Summary Dismissal of Blasting Impacts as Insignificant Is Erroneous, and Its Suggestion that Citizens File Nuisance Actions Is Outrageous

The DEIS finds that "blasting is not considered a 'significant issue' and no actions are considered in this EIS" to address it. DEIS II.A-6. The DEIS claims that existing regulations are adequate to protect coalfield residents from blasting impacts. Id. It states that "when blasting complaints occur, the complaints are investigated and responded to as required." DEIS III.W-6. At the same time, the DEIS admits that blasting, even within regulatory limits, "will continue to have periodic adverse effects on the quality of life of residents living in close proximity to the mine sites." Id. However, rather than consider changes to the regulations to eliminate these adverse effects, the DEIS instead advises coalfield residents to file lawsuits to abate the nuisance. Id.

16-3-2

The DEIS is simply wrong that blasting complaints are being adequately investigated and

resolved. A report by West Virginia's Legislative Auditor found that WVDEP's blasting office was not doing its job. West Virginia Legislative Auditor, Preliminary Performance Review, "The Office of Explosives and Blasting Is Not Meeting All Required Mandates," PE02-36-268 (December 2002). At the time of the audit, 39 of 202 complaints filed with the blasting office had not yet been assigned to an inspector. Id., p. 13. Fifty-four of the 202 claims were resolved. Id. But of the 148 open claims, only five had been sent to a claims administrator for resolution, the audit found. Id. More than one-third of the open claims were more than a year old, the audit said. Id. at 14. "Citizens with open claims could be living in hazardous conditions due to damage sustained in a blasting incident," the audit concluded. Id. at 15-16. "In addition, the property values of individuals waiting for the resolution of claims could be affected until the damage of the property is corrected." Id.

Furthermore, the DEIS' suggestion that citizens should take their blasting claims to court rather than try to resolve them through the NEPA process or SMCRA is outrageous. OSM's preliminary report in February 2002 on blasting-related citizen complaints stated:

> The performance standards in the blasting regulations were established to provide protection against damage to typical homes that are located in the coal producing regions. Both SMCRA and the regulations make it clear that all private property must be protected from damage. ...
>
> The regulations allow the regulatory authority to require any and all blasts be monitored using a blasting seismograph which monitors both ground vibrations and airblast. Often the monitoring of blasts is only required as a reaction to citizen complaints. The survey also indicates that there is little proactive monitoring by either the regulatory authority or the operator. In areas where there will be continued blasting activity over a long period of time and where there is a population concentration there should also be frequent monitoring of blasts in order to establish a record of the intensity of ground vibrations and airblast that is generated by the mine and extends into the area around surrounding [sic] the mine.

2/15/02 Robinson email, Ex. 16, Citizen Complaint Study for EIS, pp. 5-6 (emphasis added). Thus, here is a practical, sensible measure for reducing blasting complaints by monitoring their magnitude and frequency. This information should then be made publicly available to coalfield residents. Monitoring and disclosure can serve the valuable function of exposing excessive blasting and thereby create an incentive for companies to reduce these impacts, in the same way that public disclosure of the use of hazardous chemicals under the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. §§ 11001 *et seq.*, has reduced use of those chemicals. It is unjust to force citizens to go to court to obtain a judicial remedy when administrative remedies are already available that could achieve the same goal of reducing nuisance impacts.

M. The DEIS Underestimates Impacts on the Cerulean Warbler by Ignoring A Recent Study

3-5

In January 2003, the FWS notified the Steering Committee that there was a new December 2002 peer-reviewed study by Weakland and Wood on cerulean warblers:

> The issue of MTM/VF effects on cerulean warbler habitat is more important now than it appeared to be at the time of earlier drafts of the EIS. The Southern Environmental Law Center has petitioned the Fish and Wildlife Service to list the cerulean warbler as threatened and to designate critical habitat. The Service's 90-day finding on the petition listed mountaintop mining as one of the threats to this species, and noted that "unfortunately, the area of the country with the highest density of ceruleans is also in a coal-mining region where mountaintop removal mining is practiced."

1/22/03 Tibbott e-mail, Ex. 63. FWS stated that "the methods used in the new study allow a more accurate and precise estimate of bird abundance than were used in the EIS study, and facilitate evaluating the relationship between bird density and habitat and landscape variables." Id. FWS offered to write a new section for the DEIS to describe this new report. Id.

> The abstract of the new study concludes that:
>
> Generally, our data indicate that Cerulean Warblers are negatively affected by mountaintop mining from loss of forested habitat, particularly ridgetops, and from degradation of remaining forests (as evidenced by lower territory density in fragmented forests and lower territory density closer to mine edges.)

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1/22/03 Tibbott e-mail, Ex. 64, Weakland and Wood, "Cerulean Warbler (*Dendroica Cerulea*) Microhabitat and Landscape-level Habitat Characteristics in Southern West Virginia in Relation to Mountaintop Mining/Valley Fills," Final Project Report (December 2002). FWS proposed inserts to the DEIS, including material on the cerulean warbler in this new study. 2/18/03 Tibbott e-mail, Ex. 67, Attachment. However, this material was not included in the DEIS. The new study is not listed in the References in Part V of the DEIS, and the section of the DEIS that discusses the cerulean warbler makes no mention of the findings from the new study. *See* DEIS III.F-8.

The DEIS's failure to explicitly consider the Weakland and Wood study clearly renders the DEIS inadequate and in violation of NEPA. In Sierra Club v. Bosworth, 199 F. Supp.2d 971 (N.D.Cal. 2002), the court held that an EIS prepared by the USFS for a post-fire salvage logging project violated NEPA by failing to disclose a scientific study opposing post-fire logging. That case is directly on point. In Sierra Club v. Bosworth, the court explained:

> It is not ... adequate ... to merely include scientific information in the administrative record. NEPA requires that the EIS itself "make explicit reference ... to the scientific and other sources relied upon for conclusions in the statement." ...
> Nor does the fact that the Forest Service's scientists may have considered contrary opinions, such as the Beschta report, constitute sufficient compliance with NEPA where

the EIS fails to disclose or analyze such opinions. ...
Accordingly, the Court concludes that the ... EIS violates NEPA by failing to disclose and analyze scientific opinion in support of and in opposition to the conclusion that the ... project will reduce the intensity of future wildfires in the project area...
Plaintiffs also assert that the EIS fails to disclose and analyze scientific opinion that is directly opposed to post-fire logging.... such as the Beschta report... Although the Forest Service is not required to adopt the recommendations contained within the Beschta report and may rely on other expert opinion instead, the ... EIS fails, "not because experts disagree, but because the FEIS lacks reasoned discussion of major scientific objections." *See* Moseley, 798 F.Supp. 1473, 1482.
Accordingly, the Court concludes that the EIS violates NEPA by failing to disclose scientific opinion that opposes post-fire logging.

199 F. Supp.2d at 980-81 (citations and footnote omitted). Similarly, the MTM/VF DEIS violates NEPA by failing to discuss the Weakland and Wood study of Cerulean Warblers.

N. The DEIS Underestimates Impacts on Threatened and Endangered Species

The DEIS mentions the September 24, 1996 FWS programmatic biological opinion on MTM/VF operations, which found that state and federal regulatory programs under SMCRA would not jeopardize endangered species if those programs were "properly implemented." DEIS, p. IV.D-5. However, the DEIS fails to analyze whether, in fact, those programs have been properly implemented. Indeed, preparers of the DEIS deleted the following passage from the final document:

> In reviewing the field-level coordination, consultation, and reporting procedures carried out by SMCRA and CWA regulatory authorities in authorizing mountaintop mining activities in Appalachia, the agencies have identified a number of the procedures specified in SMCRA regulations and the 1996 programmatic biological opinion that have not been followed. Of particular concern is the inconsistent interpretation of the requirements of the biological opinion by State regulatory agencies and some OSM offices. For example, in many cases these State agencies have not provided sufficient site-specific information to enable timely FWS review of project proposals, and they are often unwilling to incorporate FWS recommendations for the protection of listed and proposed species, particularly when those recommendations pertain to indirect or cumulative effects. In many instances, explanations and concurrence procedures have also not occurred. Consequently, the level of protection for listed and proposed species envisioned in the programmatic biological opinion, or that would have been obtained through project by project section 7 consultations with the federal regulatory authority, does not appear to have been achieved.

4/21/03 Rider email, Ex. 71, attached file: chivrewrite.wpd. Thus, this passage indicates that the 1996 biological opinion is not working as intended, and therefore that the non-jeopardy of

8-1-2

protected species is not being assured. No reason is given for deleting this passage. At a minimum, such analysis of the adequacy of the implementation of the 1996 biological opinion must appear in the EIS. Otherwise, the EIS is misrepresenting the actual level of protection being provided to protected species.

8-1-2

O. The DEIS' Discussion of Antidegradation Requirements Is Erroneous

The DEIS' discussion of antidegradation requirements is erroneous in two respects. First, the DEIS fails to acknowledge that Tier 2 antidegradation reviews must be performed for each individual authorization pursuant to a NWP 21 general permit. OVEC v. Horinko, 279 F. Supp.2d 732, 757-62 (S.D. W.Va. 2003). This means that each valley fill must undergo antidegradation review prior to issuance of a 404 individual permit or a NWP 21 authorization. The DEIS fails to acknowledge this requirement. DEIS II.C-38, 42.

Second, the DEIS fails to acknowledge that valley fills cause significant degradation of downstream waters. Those waters comprise two segments. The first segment is between the toe of the valley fill and the outlet of the downstream sedimentation basin. Valley fills cause a violation of water quality standards in this segment. This segment contains high levels of sediment from valley fill runoff, and is being used illegally for in-stream treatment. The stream flowing from the toe of the valley fill is a conduit for pollution to the sedimentation basin, which is constructed in the stream. The Clean Water Act "was not intended to license dischargers to freely use waters of the United States as waste treatment systems..." 45 Fed. Reg. 33298 (May 19, 1980). In-stream impoundments remain waters of the United States. 40 C.F.R. § 122.2; West Virginia Coal Ass'n v. Reilly, 728 F. Supp. 1276, 1290 (S.D. W.Va. 1989), aff'd, 932 F.2d 964 (4th Cir. 1991).

5-8-1

The second segment is downstream from the outlet of the sedimentation basin. As we have shown above, this segment will likely contain high levels of selenium that violate water quality standards. As Brian Evans in the FWS' Southwest Virginia Field Office stated:

> Even if EPA restricts consideration of impacts to the reach of stream below the filled reach, studies described in section III.D show that fills contribute to significant degradation to the overall chemical, physical, and biological integrity of adjacent waters. For example, below fills the ambient water quality criterion for selenium concentration is exceeded consistently, natural flow regimes are altered, and macroinvertebrate diversity is depressed.

1/2/03 Tibbott e-mail, Ex. 57, p. 2).

This violates the letter and spirit of the Clean Water Act. Section 301(b)(1)(B) requires compliance with state water quality standards, including antidegradation requirements. 33 U.S.C. § 1311(b)(1)(B). The Senate Report stated that "this legislation would clearly establish that no one has the right to pollute and that pollution continues because of technological limits,

not because of any inherent rights to use the nation's waterways for the purpose of disposing of wastes." S. Rep. No. 414, 92nd Cong., 1st Sess., p. 42 (1971). "The use of any river, lake, stream or ocean as a waste treatment system is unacceptable." Id. at 7. This section "simply mean[s] that streams and rivers are no longer to be considered part of the waste treatment process." 118 Cong. Rec. 33693-94 (1972) (remarks of Sen. Muskie).

5-8-1

P. The DEIS Contains Several Serious Misstatements of Fact.

First, the DEIS incorrectly states that "[w]atershed impacts directly attributable to mining and fills could not be distinguished from impacts due to other types of human activity," (DEIS II.C-74),[51] and that "the EIS studies did not conclude that impacts documented below MTM/VF operations cause or contribute to significant degradation of waters of the U.S." DEIS II.D-9. However, as we have shown above, excess selenium was only found downstream from valley fills, and selenium causes significant degradation. Further, as FWS has observed:

> [S]tudies described in section III.D show that fills contribute to significant degradation to the overall chemical, physical, and biological integrity of adjacent waters. For example, below fills the ambient water quality criterion for selenium concentration is exceeded consistently, natural flow regimes are altered, and macroinvertebrate diversity is depressed.

1/02/03 Tibbott e-mail, Ex. 57, p. 2.

5-6-4

Second, the DEIS wrongly assumes that stream burial by valley fills "can be successfully offset by a comprehensive mitigation proposal." DEIS II.C-23. However, such an assumption is directly contradicted by the DEIS's own findings regarding the history of in-kind mitigation attempts and the state of the existing technology. That is, functioning headwater streams have never been successfully created in MTM/VF areas, and the technology to create them does not exist. *See, e.g.*, DEIS II.C-50, III.D-18 to 20, IV.B-9. Further, the proposed BMP manual's suggested reforestation practices are voluntary and unenforceable, and the DEIS points to nothing to suggest that the manual's existence will increase forestry PMLUs. *See, e.g.*, DEIS III.B-9, 11, and 15.

Third, the DEIS incorrectly claims that 68% of mountaintop mining sites in West Virginia "were to be reclaimed to forestry-related land uses [Appendix G; (Yuill, 2002)]." DEIS IV.C-5. In fact, Yuill reported the following percentages: forest/wildlife–36%; commercial woodland–5%; woodland–27%. DEIS, App. G, Yuill Report, p. 13. The "forest/wildlife" category, the largest of the three, includes the notorious "fish and wildlife habitat" land use. Id., p. 34. That land use usually consists of grassland. As defined by OSM, it does not require any forest component at all. 30 C.F.R. § 701.5 (definition of "land use," subsection (h)).

[51] *See also*, DEIS IV.B-5: "...nor could data differentiate impacts of mining, fills or other human activity in a watershed."

Furthermore, the DEIS ignores its own prior technical findings that "[l]arge-scale surface coal *mining will result in the conversion of large portions of one of the most heavily forested areas of* the country, also considered one of the most biologically diverse, to grassland habitat." Ex. 6, p. 6. Thus, by lumping non-forestry uses with true forestry uses, the DEIS grossly overestimates the actual forestry uses.

Fourth, the DEIS incorrectly asserts that "mountaintop mining may not have a significant impact on the biologic integrity of the terrestrial ecosystems," and that ample forest will remain to maintain high biological index scores for wildlife. DEIS IV.D-4. However, the DEIS states that "[h]abitat changes will occur ... [involving] a shift from a forest dominated landscape to a fragmented landscape with considerably more mining lands and eventually grassland habitat," (DEIS App. I, p. 93), and this "change in these habitats could put a number of species in peril." Id. at v. For example, "forest loss in the West Virginia portion of the study area has the potential of directly impacting as many as 244 vertebrate wildlife species." Id. at 86. "The potential adverse impact of loss of habitat for [three forest interior bird species - Louisiana Waterthrush, Worm-eating Warbler, and Cerulean Warbler] has extreme ecological significance in that habitats required by these species for successful breeding are limited in the eastern United States." Id. at 90 (emphasis added). "Loss of these species has more ecological importance than providing habitat for grassland species considered rare in the state because it suggests possible future endangerment of some forest interior species as opposed to the potential gain of some disjunct grassland species populations." Id. at 91. Further, "[s]alamanders are an important ecological component in the mesic forests of the study area... [and] are intimately associated with forest ecosystems[,] acting as predators of small invertebrates and serving as prey to larger predators." Id. (citations omitted). "Assuming that 80% of the salamanders are lost in the projected forest impact areas, approximately 1,232,972,280 have the potential of being adversely impacted." Id. at 92-93 (citation omitted). Further,

5-6-4

> [T]his EIS describes biotic interactions common in headwater streams and various vertebrate species including birds, salamanders (including newts), and mammals which require interactions with the aquatic environment in order to maintain their life cycle. Biotic communities have been demonstrated to occur in the uppermost reaches of watersheds, even in ephemeral stream zones which flow only as a result of rain or snow melt. Under all alternatives, the biota in these reaches are at risk from valley fills. Filling would eliminate all aquatic and aquatic-dependant interactions that would formerly have occurred in the filled area... [T]he permanent nature of filling would suggest that MTM/VF impacts to biotic interactions in headwater stream systems, including interactions linking terrestrial biota to the aquatic environment, may constitute a[n] irreversible impact to this system in the study area.

DEIS IV.D-4 - 5 (emphasis added).

Fifth, the DEIS incorrectly states that "mined sites may take as long as 120 years or more to attain mature forest conditions." DEIS App. I, p. 92. However, Cindy Tibbot (USFWS) has

stated, and William Hoffman (USEPA) has agreed:

> [R]e-establishing native hardwood forests on reclaimed mines is still experimental. We don't know what the long-term success will be. Even if hardwood forests can be re-established, it should be intuitively obvious that they'll be a drastically different ecosystem from pre-mining forests for generations, if not **thousands** of years...

Ex. 5 (emphases added). The DEIS itself similarly observes: "[T]he permanent nature of filling would suggest that MTM/VF impacts to biotic interactions in headwater stream systems ... may constitute a[n] irreversible impact to this system in the study area." DEIS IV.D-5 (emphasis added). *See also*, Ex. 6, p. 6: "Unless reclamation practices are changed drastically, it can be assumed that this forest to grassland conversion is, for all practical purposes, permanent. Even if reclamation practices are changed, we must still consider the recovery of a functional mesophytic forest ecosystem as a long-term ecological experiment with uncertain results." (emphasis added).

Finally, the DEIS incorrectly describes West Virginia's AOC+ protocol as a "fill minimization analysis." DEIS IV.B-7. As OSM's Charleston Field Office explained, this is incorrect: 5-6-4

> The Draft EIS mis-characterizes the AOC+ document as a fill minimization document when in fact it is an optimization document that simply provides a process to determine the volume of excess spoil and calculates the size of the disposal area for the excess spoil. It creates a 'model' minesite, but the operator is not bound by the constraints of the model when completing the final mine plan. The only constraint is that the amount of material backfilled must equal the amount determined not to be excess by the AOC+ process. It does not limit the size or configuration of any particular fill.

12/12/02 Morgan email, Ex. 53. The Director of WVDEP's Division of Mining and Reclamation criticized the DEIS because it "contains no guidance for determining whether fill sizes have been minimized," and confirmed that the AOC+ formula used by that office is only designed to achieve fill optimization, not fill minimization. 1/13/03 Crum letter, Ex. 61.

III. The Corps Is Illegally Taking Actions Before the Final EIS Is Completed

A. The Corps Has Made Commitments to Actions that Prejudice the Results of the EIS

NEPA requires that, until an agency issues a Record of Decision for a pending NEPA document, "no action concerning the proposal shall be taken which would: (1) have an adverse environmental impact; or (2) limit the choice of reasonable alternatives." 40 C.F.R. § 1506.1(a)(1), (2). In addition, "the comprehensive 'hard look' mandated by Congress and required by the statute [NEPA] must be timely, and it must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a 4-2

decision already made." Metcalf v. Daley, 214 F.3d 1135, 1142 (9th Cir. 2000).

The Corps has violated these requirements by making commitments to actions that prejudice the results of the final MTM/VF EIS. In a May-June 2003 briefing brochure entitled "Surface Coal Mining—The way forward," the Corps stated that it intended to "ensure that NWP 21 will continue to be available to accomplish sustainable use of coal resources." Ex. 69, p. 3 (emphasis added). Similarly, in an April 4, 2003 document entitled "Mountaintop Surface Coal Mining Master Strategy," the Corps lists a number of "agency commitments" that the Corps, EPA, and OSM will carry out regarding permitting of mountaintop coal mines. Ex. 74, pp. 5-7. Among other things, the Corps says that it would "make case-by-case determinations of the applicability of NWP 21 to MTM/VF projects." Id. at 6. As a result, the Corps has already committed to carry out Alternative 2 (case-by-case NWP 21 authorizations), and has rejected Alternative 1 (most mines require individual 404 permits), before the EIS is even finished. *See* DEIS II.B-3, IV.B-14 to B-15.

B. The Corps Has Decided to Segment the Issue of Fill Thresholds from the Rest of the NEPA Process

One of the most important issues that the EIS should consider in detail is whether to impose thresholds or limits on the amount of streams that can be filled with mining waste pursuant to § 404. However, as discussed above, the DEIS summarily dismisses this alternative without any detailed analysis. Instead, the DEIS promises that the Corps will continue collecting data on stream impact thresholds for future analysis and decisionmaking. DEIS II.D-2 to D-3. 4-2

The promise is hollow. The Corps plans to "undertake an independent analysis of the utility of thresholds using site-specific verification data, and using a GIS-based evaluation process . . ." Ex. 69, p. 8. However, the Corps already decided that it "will NOT supplement the MTM EIS to disclose the results of its independent analysis of thresholds because the MTM EIS does not contain the information necessary to inform a decision on the appropriateness of thresholds, or what alternative thresholds should be considered." Id. at 7 (emphasis in original). Instead, the Corps states that "[a]ny regulatory changes [regarding thresholds] would be accomplished by notice and comment rulemaking, as appropriate." Id. at 8.

NEPA requires that proposals "which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement." 40 C.F.R. § 1502.4(a). A NEPA document is supposed to analyze the impacts of "[c]onnected actions," including actions that are "interdependent parts of a larger action and depend on the larger action for their justification." Id. § 1508.25(a)(1). In this instance, the larger action is federal regulation of mountaintop mining. Restrictions on stream filling are an "interdependent part" of that larger action and therefore must be analyzed together in one comprehensive EIS. In violation of this requirement, the Corps is planning on analyzing fill thresholds completely outside of the NEPA process.

Conclusion

For these reasons, the DEIS fails to meet the legal requirements of NEPA and other federal statutes and must be corrected to address the deficiencies noted above and reissued for public comment. 4-2

List of Exhibits to Comments by WVHC and OVEC on MTM/VF DEIS

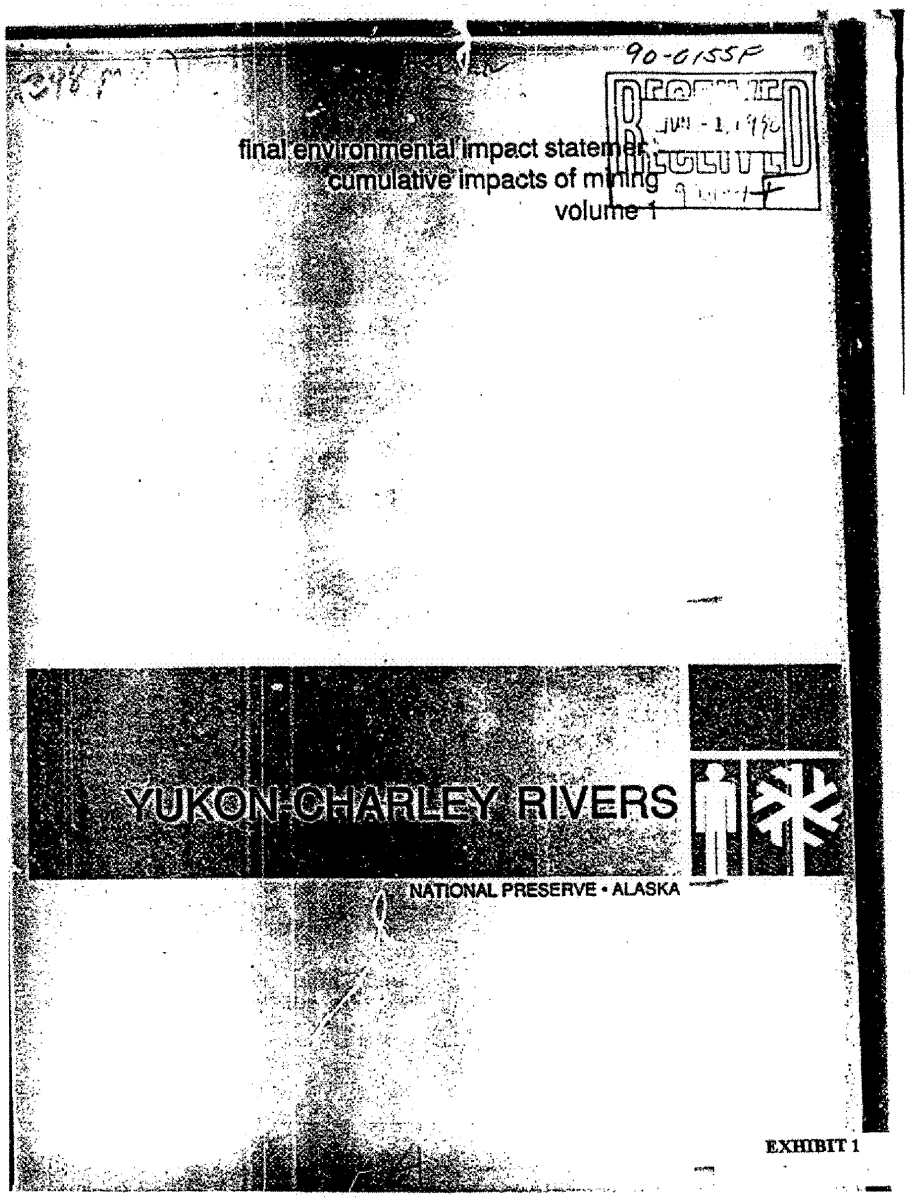
No.	Date	Agency	Description
1	1990	NPS	Final EIS, Yukon-Charley Rivers National Preserve, Excerpt
2	1/97	CEQ	Considering Cumulative Effects Under NEPA, Excerpt
3	1/01	EPA	Preliminary Draft, Mountaintop Mining/Valley Fill EIS, Excerpts
4	1/18/01	EPA	Email from Rebecca Hanmer re: Did the status reports go out yet? with Attachment: Mountaintop Mining/Valley Fill Status Report, Executive Summary, January 16, 2001
5	6/26/01	FWS	Email from Cindy Tibbott re: MTM/VF EIS cumulative impact assessment
6	8/15/01	EIS Steering Team	Problems Identified/Confirmed/Inferred by Technical Studies
7	10/5/01	DOI	Letter from J. Steven Griles to CEQ, OMB, EPA, COE re: Mountaintop Mining/Valley Fills Issues
8	10/11/01	FWS	Email from Dave Densmore re: EIS Direction
9	10/19/01	EPA	Email from William Hoffman re: MTM/VF Briefing & OSM Vision, with Attachment: Executive Summary, A Plan to Address Mountaintop Mining Issues in Appalachia
10	1/8/02	EPA	Email from William Hoffman re: Alternative Framework
11	1/22/02	EPA	Email from William Hoffman re: Mt Top conf call on 1/23/02 at 1 PM
12	1/31/02	EPA	Email from William Hoffman re: Draft notes of our 1/29/02 post CEQ discussion, with Attachment: Summary of 1/29/02 mtg - debriefing from CEQ update on Mt Top EIS
13	2/7/02	EPA	Email from William Hoffman re: Declined: MTM/Valley Fill EIS
14	2/13/02	EPA	Email from William Hoffman re: EIS
15	2/13/02	EPA	Email from William Hoffman re: Next Steps
16	2/15/02	OSM	Email from Mike Robinson re: Citizen Complaint Study for EIS, with Attachment: Blasting Related Citizen Complaints within the Mountaintop Mining/Valley Fill Environmental Impact Statement (EIS) Study Area
17	2/27/02	EPA	Email from William Hoffman re: R3 to brief Ben Grumbles on Mountaintop Mining EIS Status and Issues on 3/5 with Attachment: Mountaintop Mining EIS Presentation, Office of Water, Office of Federal Activities, Office of General Counsel, March 5, 2002
18	3/1/02	EPA	Email from William Hoffman re: EIS Alternatives Pros & Cons, with Attachment: Pros & Cons

19	3/7/02	EPA	Email from William Hoffman re: One Pager for Whitman/Norton Meeting, with Attachment: Mountaintop Mining/Valley Fill Environmental Impact Statement
20	3/12/02	EPA	Email from William Hoffman re: OSM Action Descriptions
21	3/25/02	FWS	Email from Cindy Tibbott re: Purpose & need/alternatives write-ups, with Attachment: I. Purpose and Need for Action and IV. Alternatives
22	3/27/02	EPA	Email from Gary Bryant re: DRAFT Report
23	4/16/02	EPA	Email from William Hoffman re: Update, with Attachment: MTM/VF Status, April 15, 2002
24	4/02	EIS	Mountaintop Mining/ Valley Fill Draft EIS, April 2002, Excerpt
25	5/16/02	OSM	Email from Mike Robinson re: Senior Executive Conference Call–3pm Tuesday 5/21
26	5/17/02	OSM	Email from Mike Robinson re: Principals meeting
27	5/17/02	DOI .	Fax from Steve Griles re: 5/22/02 conference call
28	5/22/02	DOJ	Fax from John Cruden to Steve Griles re: 1998 settlement agreement
29	6/10/02	EPA	Email from Mike Robinson re: EIS Steering Committee Conference Call: Today (6/10) 1 p.m., with Attachment: EPA Issues- MTM/VF EIS
30	6/12/02	FWS	Email from Dave Densmore re: FWS EIS ISSUES
31	6/14/02	EPA	Email from David Rider re: EPA Expectations
32	6/14/02	EPA	Email from William Hoffman re: EPA Expectations/Disputed Actions
33	6/14/02	OSM	Email from Mike Robinson re: Agenda and Handout for 6/18 SES Issue, with Attachment: Mountaintop Mining/Valley Fill Environmental Impact Statement, Senior Executive Issue Resolution Meeting, Interior South Building Room 332, June 18, 2002, Proposed Agenda; Handout for SES/Steering Committee Issue Resolution Meeting, Refresh on Teleconference Meeting Decisions, May 21, 2002
34	6/19/02	EPA	Email from William Hoffman re: out of office, with Attachment: Proposed EIS Alternative Framework
35	6/26/02	OSM	Email from Mike Robinson re: Mock-up of Proposed new Alternative Framework, with Attachment: Mountaintop Mining/Valley Fill EIS Alternative Framework (June 26, 2002 v.)
36	7/31/02	FWS	Email from Cindy Tibbott re: Revised alternatives framework, with Attachments: Rationale for FWS "Alternative 4" (i.e., why this is not an alternative that can't be chosen); Draft - MTM/Valley Fill EIS Alternatives
37	8/13/02	OSM	Email from Mike Robinson re: Draft Proposed EIS Alternative Framework–Aquatic Issues; SES Issue, with Attachment: MTM/Valley Fill EIS Alternatives (August 13, 2002 version)

38	8/15/02	EPA	Email from Gregory Peck re: Executive Committee Discussion, with Attachment: Alternatives Matrix for Draft MTM/VF PEIS
39	8/21/02	FWS	Email from Dave Densmore re: Explanation for Proposed Modification of Alternative #1, with Attachment: Background on FWS Proposed Modifications to Alternative 1
40	9/10/02	EPA	Email from William Hoffman re: Steering Committee Meetings/ Conference Call Summaries, with Attachment: September 9, 2002 Steering Committee Conference Call
41	9/20/02	OSM	Email from Mike Robinson re: Executive Conference Call Agenda–9/23/02, 9-10 am, with Attachment: MTM/VF EIS Executive Meeting Agenda, September 23, 2002 Conference Call
42	9/30/02	FWS	Email from Dave Densmore re: FWS Comments on Chapter IV, with Attachment: FWS Comments on 9/20/02 Draft of Chapter IV (Alternatives)
43	10/4/02	EPA	Email from John Forren re: Reminder: Comments on Draft Chapter IV Rewrite Up Due Today, with Attachment: John Forren's comments on the Alternatives Section
44	10/22/02	EPA	Email from Gregory Peck re: Draft Exec. Comm. Summary, with Attachment: Discussion Summary, MTM/VF EIS Executive Committee, October 16, 2002 - Shepardstown, WV
45	10/30/02	FWS	Email from Cindy Tibbott re: Alternatives Format, with Attachment: Alternatives discussion
46	11/1/02	OSM	Email from Mike Robinson re: Alternatives Format
47	11/7/02	EPA	Email from David Rider re: MTM study
48	11/12/02	FWS	Email from Cindy Tibbott re: OSM's draft on fill inventory
49	11/13/02	FWS	Email from Cindy Tibbott re: Chapters I & II comments, with Attachment: Review of Chapters I and II–Cindy Tibbott
50	11/15/02	FWS	Email from Cindy Tibbott re: Suggested edits/editions for aquatic study sheet, with Attachment: Comments on Aquatic Study Qualification Write-Up–Cindy Tibbott
51	11/15/02	EPA	Email from John Forren re: More on Sp Aquatic Sites
52	11/18/02	EPA	Email from Kathy Hodgkiss re: MTM/VF DEIS Conference Call Thursday 11/21 9-11 am, with Attachment: Agenda, Mountaintop Mining/Valley Fill DEIS Executive Committee & Steering Committee Conference Call
53	12/12/02	OSM	Email from Thomas Morgan re: Comments on Draft EIS
54	12/20/02	FWS	Letter from Lee Barclay re: Updated threatened and endangered species information for the Kentucky and Tennessee portion of the Southern Appalachian coal fields

55	12/23/02	EPA	Email from John Forren re: Comments on DRAFT EIS for MTM/VF, with Attachment: Comments on the Draft EIS for MTM/VF Coal Mining (Dec 2002) from ESD, OEP, Wheeling Staff 12/20/02
56	12/29/02	EPA	Email from Ray George re: Comments on DRAFT EIS for MTM/VF
57	1/2/03	EPA	Email from Cindy Tibbott re: Comments from other FWS offices on draft EIS
58	1/2/03	EPA	Email from John Forren re: EPA-OGC NEPA comments on MTM/VF EIS, with Attachment: EPA OGC NEPA Comments on MTM/VF EIS
59	1/7/03	EPA	Email from Steve Neugaboren re: MTM legal issues, with Attachment: OGC water law office comments on mountaintop mining EIS 12/26/02
60	1/10/03	OSM	Email from Mike Robinson re: H&A economic analysis, with Attachment: Letter report from Morgan Worldwide Consultants, Inc.
61	1/13/03	WVDEP	Letter from Matthew Crum re: MTM DEIS
62	1/16/03	OSM	Mountaintop Mining/Valley Fill DEIS, Background Information for Communications Team
63	1/22/03	FWS	Email from Cindy Tibbott re: New Petra Wood Study
64	1/22/03	FWS	Email from Cindy Tibbot re: New Petra Wood Study, with Attachment: Cerulean Warbler (Dendroica Cerulea) Microhabitat and Landscape Level Habitat Characteristics in Southern West Virginia in Relation to Mountaintop Mining/Valley Fills, Final Project Report, December 2002, Abstract
65	1/27/03	EPA	Email from Kathy Hodgkiss re: MTM EIS Executive Committee Call Tuesday, 1/28; 9-11 am:, with Attachment: MTM/VF EIS Executive Committee Agenda
66	1/28/03	FWS	Email from Dave Densmore re: Re-proposed NWP 21 Scheme for Alternative 2, with Attachment: Proposal for Minimal Effects Threshold for NWP 21
67	2/18/03	FWS	Email from Cindy Tibbott re: Edits, with Attachment: Inserts for Chapters III and IV (information on the new study from Weakland and Wood on cerulean warblers)
68	3/12/03	EPA	Email from Kathy Hodgkiss re: MTM EIS Executive Committee Call, Friday, 3/14; 9-10 am, with Attachment: Email re: MTM Way Ahead
69	4/4/03	COE	Mountaintop Surface Coal Mining Master Strategy
70	4/17/03	COE	Email from Chip Smith re: Revised Info on New PCNs and Enforcement, with Attachment: Mountaintop Surface Coal Mining Status and Way Forward, April 17, 2003
71	4/21/03	EPA	Email from David Rider re: Ch 14 edits, with Attachment: DEIS, Ch. IV.J., Threatened and Endangered Species, pp. IV.J-1 to IV.J-2
72	5/21/03	EPA	Email from John Forren re: Briefing Outline, with Attachment: Briefing, Mountaintop Mining/Valley Fills (MTM/VF) Draft Programmatic Environmental Impact Statement
73	6/2/03	OSM	Email from Mike Robinson re: Hostile Q&A, with Attachment: Untitled

74	5-6/03	COE	Briefing Brochure: Surface Coal Mining---The way forward
75	12/22/03	OSM	Letter to Jim Hecker re: FOIA request, with Enclosure B: withheld documents



SUMMARY

FINAL ENVIRONMENTAL IMPACT STATEMENT

This *Final Environmental Impact Statement* (FEIS) evaluates a range of alternatives for managing mining activity, analyzing cumulative impacts, and mitigating environmental impacts in Yukon-Charley Rivers National Preserve (see Location of Yukon-Charley Rivers National Preserve, Alaska map). Four alternatives, including a proposed action, have been evaluated:

alternative A (post-1985 status quo/no action) – review and analyze mining proposals using a qualitative evaluation of cumulative impacts

alternative B – review and analyze mining proposals using a quantitative evaluation of cumulative impacts and resource protection goals

alternative C – review and analyze mining proposals using a quantitative evaluation of cumulative impacts and resource protection goals with the addition of restrictions for mining claims patented in the future and a strengthened mining claim acquisition program

alternative D (proposed action) – acquisition of all patented and valid unpatented mining claims

On July 22, 1985, the U.S. District Court for the District of Alaska enjoined the National Park Service (NPS) from approving plans of operations for mining in three national park system units. The court order resulted from litigation filed by the Northern Alaska Environmental Center, the Alaska Chapter of the Sierra Club, and the Denali Citizens Council (Civil Case J85-009). The court order directed the NPS to ensure full compliance with the National Environmental Policy Act (PL 91-190; NEPA) and the NPS regulations for mining and mining claims (36 CFR Subpart 9A) before taking actions to approve new mining operations in park units. The court also required the National Park Service to prepare an adequate environmental impact statements covering the cumulative impacts of multiple mining operations in Yukon-Charley Rivers National Preserve. On December 4, 1985, this order was amended to require the preparation of an additional environmental impact statement for mining in Denali National Park and Preserve. A final judgment and injunction was issued on March 3, 1988.

This FEIS was prepared in response to the court order. It addresses the cumulative impacts of mining associated with managing mining activity, analyzing cumulative impacts, and mitigating environmental impacts in the Woodchopper/Coal/Sam Creek and Fourth of July Creek study areas of Yukon-Charley Rivers National Preserve. This action coincides with the need to evaluate the minerals management programs in the Yukon-Charley Rivers, Wrangell-St. Elias, and Denali NPS units to provide for adequate resource management and protection, and is one element of a minerals management plan.

In developing this FEIS, numerous issues were identified through scoping for analysis. Some of these issues include hydrologic changes, water quality, impacts on wetlands, long-term and short-term impacts, nonmining uses of patented claims, reclamation, fish and wildlife habitat, riparian habitat, threatened and endangered species, criteria for cumulative effects analysis, impact thresholds, magnitude of impacts, economic impacts, access, impacts of access, impacts on subsistence, heavy metals contamination, abandoned mine lands, impacts on scenic values, administrative costs for mining claims, acquisition costs of mining properties, and wilderness.

For purposes of analysis, a probable mineral development scenario was developed and applied for each alternative to project environmental impacts. The scenario predicts where and to what extent future mining activity might reasonably occur in the preserve over the next 10 years. The scenario does not represent an NPS proposal, nor does it suggest levels of mining activity acceptable to the National Park Service.

Under alternative A (post-1985 status quo/no action), the National Park Service would review and analyze mining plans of operations submitted for proposed activity on patented and valid unpatented mining claims according to applicable regulations including 36 CFR Subpart 9A and the access provisions of 43 CFR Part 36. The National Park Service would review individual plans of operations on a case-by-case basis and prepare environmental documents as required by the National Environmental Policy Act (PL 91-190). Determinations of site-specific and cumulative mining impacts would be made qualitatively.

Under alternative B, the National Park Service would review and analyze proposed mining plans of operations according to applicable regulations. The National Park Service would review plans of operations on a comprehensive basis and prepare environmental documents as required by the National Environmental Policy Act. "Target" resources would be identified and used as the focal point for evaluating the effects of proposed mining activity. Resource protection goals would be established where adequate resource information is available and used to evaluate cumulative impacts. Resource protection goals would be established for the following target resources: arctic grayling habitat and riparian wildlife habitat. Resource protection goals would be only part of the information used by the National Park Service in determining the appropriate action on a proposed mining plan of operations. If the resource protection goal for any target resource cannot be met because of the potential effects of a proposed mining operation, the operator would have the option to perform mitigation to reduce the magnitude of the effect within the resource protection goal or otherwise protect resource values. In areas where resource protection goals have not been met because of past mining activity, the operator would have the option to perform mitigation that would avoid further effects on specific resources or reduce resource impacts. Resource protection goals would not be established at this time for wetlands, water quality, peregrine falcon, visual quality, cultural resources, subsistence, wilderness values, recreation, local economy, and paleontological resources. In cases where it is not possible to approve a mining plan of operations or other circumstances would not justify approval, the National Park Service would pursue acquisition of the mining claims.

Alternative C is identical to alternative B with two exceptions. As for alternative B, the National Park Service would review and analyze proposed mining plans of operations according to applicable regulations. The National Park Service would review plans of operations on a comprehensive basis and prepare environmental documents as required by the National Environmental Policy Act. "Target" resources would be identified and used as the focal point for evaluating the effects of proposed mining activity. Resource protection goals would be established where adequate resource information is available and used to evaluate cumulative impacts. Resource protection goals would be established for the following target resources: arctic grayling habitat and riparian wildlife habitat. Resource protection goals would be only part of the information used by the National Park Service in determining the appropriate action on a proposed mining plan of operations. If the resource protection goal for any target resource cannot be met because of the potential effects of a proposed mining operation, the operator would have the option to perform mitigation to reduce the magnitude of the effect within the resource protection goal or otherwise protect resource values. In areas where resource protection goals have not been met because of past mining activity, the operator would have the option to perform mitigation that would avoid further effects on specific resources or reduce resource impacts. Resource protection goals would not be established at this time for wetlands, water quality, peregrine falcon, visual quality, cultural resources, subsistence, wilderness

values, recreation, local economy, and paleontological resources. In cases where it is not possible to approve a mining plan of operations or other circumstances would not justify approval, the National Park Service would pursue acquisition of the mining claims. Alternative C differs from alternative B in that patent restrictions would be applied to all valid unpatented mining claims taken to patent in the future; this would require a change in the law. Once patented, the claim surface would remain in federal ownership to limit the extent of additional conversions of patented claims to nonmining uses. The restricted patent would convey the minerals only, and the claims would be subject to a stricter standard for reclamation. In addition, a strengthened mining claim acquisition program would be initiated under alternative C to acquire valid unpatented and patented claims whose development by mining or otherwise would be detrimental to park values.

Under the proposed action (alternative D), the National Park Service would develop a mining claim acquisition plan to acquire all patented and valid unpatented mining claims in the park/preserve. Existing nonmining developments or improvements on patented claims would be reviewed for compatibility with park purposes and possible acquisition. Compatible nonmining developments and improvements could be excluded from acquisition. During the acquisition phase, the National Park Service would process mining plans of operations according to the procedures specified in Alternative C. Existing operations with approved plans would be allowed to complete activities, including reclamation, as approved. The National Park Service would also process plan amendments or operational modifications according to the procedures specified in Alternative C. Validity determinations for all unpatented mining claims not examined would occur and Congressional appropriations would be required for claim acquisition.

Under each of the four alternatives, mining claim acquisition methods would include purchase, exchange, or donation. A negotiated transaction would be sought based on fair market value. Eminent domain could be exercised in appropriate cases. Mining claims would be acquired under existing authorities of the secretary of the interior. Under each alternative, the National Park Service would pursue a program for reclamation of unreclaimed, abandoned, and acquired mined lands owned in fee by the United States within the unit's boundaries.

Alternative A could have the most adverse impacts on park resources because it involves the greatest potential for additional mining and nonmining uses of mining claims. Alternative B, C, or D would reduce adverse impacts from mining different amounts. Alternative B provides for a quantitative analysis of the cumulative effects of mining activities but does not prevent nonmining uses on claims taken to patent. In addition, alternative B does not include a strengthened program of mining claim acquisition. Alternative C would reduce the impacts from nonmining activities; provide for an quantitative analysis of cumulative impacts; strengthen claim acquisition; and reduce nonmining uses of claims taken to patent in the future. Alternative D would reduce surface impacts associated with mining and nonmining uses of mining claims more than alternative A, B, or C.

DRAFT ENVIRONMENTAL IMPACT STATEMENT

The Draft Environmental Impact Statement (DEIS) assessed the cumulative impacts of multiple mining operations in Yukon-Charley Rivers National Preserve as required by the U.S. District Court's final judgement and injunction. The alternatives evaluated in the DEIS are identical to those evaluated in this FEIS with exception to alternative B which was identified as the proposed action in the DEIS.

The DEIS was released to the public on April 13, 1989, with a comment period of 60 days. In response to requests for a longer comment period and the availability of background information used for developing the DEIS, the comment period was extended by 60 days to August 14, 1989.

habitat. Additional impacts on water quality and fish habitat could be caused by increased erosion, sediment transport, and sewage associated with the operation of the facilities.

Future placer mining and nonmining development on both patented and unpatented claims which would discharge dredged and/or fill materials into waters of the U.S. would require a permit under section 404 of the Clean Water Act (PL 92-500). The U.S. Army Corps of Engineers administers the section 404 permit program (see appendix 16).

Possible nonmining impacts inside the study areas include the concentration of visitor use along mining access roads and trails. Because of the lack of other overland travel routes, visitors are likely to use mining roads, most of which follow areas from the Yukon River inland. Additional impacts on water quality and fish habitat from this type of use would be minimal.

Water Quality

Woodchopper/Coal/Sam Creek Study Area. Under alternative A, land cover disturbance in the study area from the three placer mining operations predicted by the mineral development scenario would total 70 acres within the stream and riparian corridor. The three operations would affect surface water quality in a total of 31.3 streams miles. Impacts on ground and surface water could reduce the productive capabilities of aquatic and terrestrial organisms in the study area.

Woodchopper Creek – Placer mining has affected water quality in 12.2 miles of stream from the upper end of the disturbed areas downstream to the Yukon River. Dissolved oxygen, pH, alkalinity, hardness, and metal levels (except zinc) of water within and downstream of previously mined areas are within both the EPA (1986) criteria for protection of aquatic life and the drinking water standards for the state of Alaska. Zinc is naturally high in Woodchopper Creek. Petroleum products and other hazardous materials are present in the watershed. However, no measurable evidence of stream contamination from these materials was found during the 1986 water quality and fishery survey. Past surface disturbing activities adjacent to Woodchopper, Mineral, and Iron creeks have accelerated stream and riparian corridor erosion and sediment transport.

The single placer mining operation predicted by the mineral development scenario would impact surface water quality in approximately 11.3 miles of stream. Future mining would potentially modify 5.8 miles of stream channel and bank within the claims area and disturb 30 acres of soil and vegetation adjacent to the stream. Surface disturbing activities would affect water quality within the claims area and downstream to the Yukon River.

Coal Creek – Placer mining has affected water quality in 8.7 miles of stream from the upper end of the disturbed areas downstream to the Yukon River. Dissolved oxygen, pH, alkalinity, hardness, and metal levels (except zinc) of water within and downstream of previously mined areas are within both the EPA (1986) criteria for protection of aquatic life and the drinking water standards for the state of Alaska. Zinc is naturally high in Coal Creek. Petroleum products and other hazardous materials are present in the watershed. Soil contaminated with mercury exists within 100 feet of Beaton Pup, a small tributary of Coal Creek. However, four Beaton Pup water samples collected and analyzed in 1986 showed no detectable concentrations of total recoverable mercury at the 0.0002mg/l detectable limit. During the 1986 water quality survey, no measurable evidence of stream contamination from other abandoned materials was found. Past surface disturbance adjacent to Coal Creek has elevated sediment and associated metal input from nonpoint runoff during storms and high flows.

Future mining in the Coal Creek drainage will be limited to mining claims on Boulder Creek. The single placer mining operation predicted by the mineral development scenario would impact surface water quality in approximately 6.2 miles of stream. In Boulder Creek, future mining would potentially modify less than 0.8 miles of stream channel and bank within the claims area and disturb 20 acres of soil and vegetation adjacent to the stream. Surface disturbing activities would affect water quality within the claims area and downstream to the Yukon River.

Sam and Ben Creeks – The majority of past mining activities in the Sam Creek drainage have been concentrated in the Ben Creek area. Placer mining has affected water quality in 9.5 miles of stream from the upper end of the disturbed areas downstream to the Yukon River. Dissolved oxygen, pH, alkalinity, hardness, and metal levels (except zinc) of water within and downstream of previously mined areas are within both the EPA (1986) criteria for the protection of aquatic life and the drinking water standards for the state of Alaska. Zinc is naturally high in Ben and Sam creeks. Petroleum products and other hazardous materials are present in the watershed. However, no measurable evidence of stream contamination from these materials was found during the 1986 survey. Past surface disturbance adjacent to Ben Creek and several road crossings have elevated sediment and associated metal input from nonpoint runoff during storms and high flows.

The single placer mining operation predicted by the mineral development scenario would impact surface water quality in approximately 13.8 miles of stream in Sam and Ben creeks. These impacts would be in addition to past impacts. Future mining would potentially modify 7.7 miles of stream channel and bank within the claims area and disturb 20 acres of soil and vegetation adjacent to the stream. Surface disturbance would affect water quality within the claims area and downstream to the Yukon River.

Cumulative Impacts – The total cumulative impacts to water quality are composed of both past impacts and impacts predicted under this alternative. Past placer mining operations have caused major modifications of the original stream channel and adjacent terrain, thus altering the chemical and physical characteristics of water draining the study area. These modifications include removal of vegetation, removal of the organic muck layer, increased exposure of subsurface rock and soil with high mineral content, and increased erosion. Past placer mining disturbance increased the depth of the permafrost table under 1,116 acres resulting in altered surface and groundwater regimes. Past mining has affected water quality within and downstream of the disturbed area in 30.4 miles of stream. The combined effects of both past impacts and impacts predicted under this alternative would affect 34.7 miles of stream within and downstream of disturbance. Long-term impacts on water quality would be associated with the continued input of sediment into streams from nonpoint runoff of disturbed areas during storms and high flows.

Conclusion – Past mining activities have had an impact on existing water quality. These impacts have not caused the natural levels of various water quality parameters to fall outside the acceptable limits for both the protection of aquatic life (EPA 1986) and the state of Alaska drinking water standards. Under this alternative, predicted mining would further impact water quality. However, the three operations predicted under this alternative would be required to comply with all state and federal water regulations and NPS water protection requirements. Potential developments associated with the nonmining uses of patented claims would have additional impacts on water quality. The cumulative impacts of past placer mining and impacts under this alternative would be minor.

Under this alternative, the possible consequences of mining impacts on wetlands include degraded water quality, and loss of fish and wildlife habitat (see aquatic resources and wildlife resources sections).

Conclusion. Past mining activities have had a major impact on wetlands in the two study areas. The majority of these impacts involved riparian plant communities (see aquatic and wildlife resources sections). Loss of wetlands that would occur under this alternative would be less than those for alternative A, potentially greater than that for alternative C, and greater than that for alternative D. Potential developments associated with the nonmining uses of patented claims would have an additional impact on wetlands.

IMPACTS ON AQUATIC RESOURCES

Impacts caused by past mining operations on water quality and grayling habitat for Woodchopper, Coal, Sam, and Fourth of July Creeks are described under alternative A. Future impacts of individual operations described under alternative A could potentially be the same for this alternative.

Potential impacts caused by mining operations under this alternative would be reduced by meeting state and federal water quality standards and criteria, maintaining natural stream flows, and implementing the water resource protection measures and operating stipulations summarized in appendix 14.

Under this alternative, an undetermined number of unpatented claims could be patented without patent restrictions. The impacts from nonmining developments on patented claims, such as cabins, subdivisions, or commercial lodges, could result in further degradation of water quality and grayling habitat. Additional impacts on water quality and fish habitat could be caused by increased erosion, sediment transport, and sewage associated with the operation of the facilities.

Future placer mining and nonmining development activities on both patented and unpatented claims which could place dredged and/or fill materials into study area waters would be subject to section 404 of the Clean Water Act (PL 92-500). The U.S. Army Corps of Engineers regulates all disposal of dredge and fill materials in preserve waters (appendix 16).

Possible nonmining impacts inside the study area include the concentration of visitor use along mining access roads and trails. Because of the lack of other overland travel routes, visitors are likely to use mining roads, most of which follow areas from the Yukon River inland. Additional impacts on water quality and fish habitat from this type of use would be minimal.

Water Quality

Woodchopper/Coal/Sam Creek Study Area. Under alternative B, land cover disturbance in the study area that would result from new mining activities would be less than 70 acres. Groundwater and surface water quality would be affected within the disturbed area. New mining activities would affect stream water quality in less than 31.3 miles of stream.

Cumulative Impacts – The total cumulative impacts to water quality are composed of both past impacts and impacts predicted under this alternative. Past placer mining operations have caused major modifications of the original stream channel and adjacent terrain, thus altering the chemical and physical characteristics of water draining the study area. These modifications include removal of vegetation, removal of the organic muck layer, thawing

of permafrost, increased exposure of subsurface rock and soil with high mineral content, and increased erosion. Past mining has affected water quality within 1,116 acres of disturbance and in 30.4 miles of stream. Existing disturbance has not caused major changes in the study area stream's natural water quality. Additional impacts from new mining would affect less than 70 acres of land cover and less than 31.3 miles of stream. Potential impacts on surface water and/or groundwater caused by past and new mining activities include: (1) altered water regimes, (2) elevated metal concentrations, (3) lowered pH, (4) accelerated erosion and transport of sediments, (5) increased turbidity, and/or (6) pollution from accidental spillage of oil, fuel, or other hazardous materials. Long-term impacts on water quality would be associated with the continued input of sediment into streams from nonpoint runoff of disturbed areas during storms and high flows. Impacts on groundwater and surface water could reduce the productive capabilities of aquatic and terrestrial organisms in the study area.

Conclusion – Past mining activities have had an impact on existing water quality. These impacts have not caused the natural levels of various water quality parameters to fall outside the acceptable limits for both the protection of aquatic life (EPA 1986) and the state of Alaska drinking water standards. Under this alternative, predicted mining would further impact water quality. However, approved operations would be required to comply with all state and federal water regulations and NPS water protection requirements. Potential developments associated with the nonmining uses of patented claims would have additional impacts on water quality. The cumulative impacts of past placer mining and this alternative would be minor. Under this alternative, the impacts of mining on water quality would be less than those for alternative A, greater than those for alternative D, and potentially greater than those for alternative C.

Fourth of July Creek Study Area. Under alternative B, land cover disturbance in the study area that would result from new mining activities would be less than 20 acres. Groundwater and surface water quality would be affected within the disturbed area. New mining activities would affect stream water quality in less than 13.1 miles of stream.

Cumulative Impacts – The total cumulative impacts to water quality are composed of both past impacts and impacts predicted under this alternative. Past placer mining operations have caused major modifications of the original stream channel and adjacent terrain, thus altering the chemical and physical characteristics of water draining the study area. These modifications include removal of vegetation, removal of the organic muck layer, thawing of permafrost, increased exposure of subsurface rock and soil with high mineral content, and increased erosion. Past mining has affected water quality within 80 acres of disturbance and in 13.1 miles of stream. Existing disturbance has not caused major changes in the study area stream's natural water quality. Additional impacts from new mining would affect less than 20 acres of land cover and less than 13.1 miles of stream. Potential impacts on surface water and/or groundwater caused by past and new mining activities include: (1) altered water regimes, (2) elevated metal concentrations, (3) lowered pH, (4) accelerated erosion and transport of sediments, (5) increased turbidity, and/or (6) pollution from accidental spillage of oil, fuel, or other hazardous materials. Long-term impacts on water quality would be associated with the continued input of sediment into streams from nonpoint runoff of disturbed areas during storms and high flows. Impacts on ground and surface water could reduce the productive capabilities of aquatic and terrestrial organisms in the study area.

Conclusion – Past mining activities have had an impact on existing water quality. These impacts have not caused the natural levels of various water quality parameters to fall outside the acceptable limits for both the protection of aquatic life (EPA 1986) and the state of Alaska drinking water standards. Under this alternative, predicted mining would further

term effects that would result from new mining activities would be less than alternative A. The long-term impacts that would result from new mining activity would reduce arctic grayling habitat by less than 0.9 HUs. The short-term impacts of habitat would be less than 3.0 HUs. The actual reduction of impacts in alternative B, over those in alternative A, would depend on the site specific potential for mitigation, protection of sensitive areas, and the provisions of a specific plan of operations.

Cumulative Impacts – The total cumulative long- and short-term impacts to arctic grayling habitat are composed of both past impacts and impacts predicted under this alternative. Past mining activities reduced the grayling habitat to 90.4 percent of the premining total. The total amount of study area grayling habitat is only 0.1 HUs above the study area resource protection goal of 29 HUHUs (table 21). An additional loss of more than 0.1 HUs could cause major long- and short-term impacts. Additional long-term losses of arctic grayling habitat from new mining would be less than 0.9 HUs. Short-term habitat losses would be less than 3.0 HUs.

Under this alternative, possible consequences of the long- and short-term reductions in arctic grayling habitat include reduced survival, avoidance of spawning and feeding areas, displacement of fish, change in age class structure, and reduced or eliminated fish populations both downstream and upstream of the mine site (table 14).

Conclusion – Past mining activities have had a substantial impact on arctic grayling habitat through the loss of 3.1 habitat units. Major long- or short-term impacts on grayling habitat could occur if new mining caused an additional loss of more than 0.1 HUs. Potential developments associated with the nonmining uses of patented claims could have additional impacts on arctic grayling habitat and the fish that use it. Overall, the impacts on arctic grayling habitat associated with the implementation of alternative B would be less than those associated with alternative A. This would result from the requirement of potentially extensive mitigation or other operational requirements to lessen the impacts to arctic grayling habitat.

Summary. Under this alternative, the impacts on arctic grayling habitat in the two study areas would be less than those for alternative A; greater than those for alternative D, and potentially greater than those for alternative C. A long-term loss of 37.0 arctic grayling HUs has occurred from past mining activities (table 21). In addition, an undetermined number of mining claims could go to patent. There would be no restrictions on patented claims; required reclamation would be minimal resulting in extended durations of long-term impacts, and the potential for nonmining developments on patented claims, which would create additional impacts on the resource, would be high.

IMPACTS ON WILDLIFE RESOURCES

Short-term habitat loss would occur when animals are displaced from or avoid areas surrounding active mining operations. Vehicle noise, human activity, and other disturbance caused by transporting personnel and equipment to and from mine sites within the study areas would result in short-term habitat reductions along access routes between the claim groups, the Yukon River, and airstrips in Woodchopper, Coal, and Fourth of July creeks, and in the hills between Coal Creek and Sam Creek. Additional long-term habitat loss would be prevented by operators using existing routes or low-impact, all terrain vehicles. Heavy equipment would be moved in the winter across frozen, snow-covered terrain.

Table 21. Arctic Grayling [illegible] in the Arctic-Charley Rivers National Preserve

Study Area Drainage	Habitat (HUs) Premining	Habitat (HUs) Existing (% premining)	Long-Term Impacts (Habitat Units) Existing Loss	Long-Term Impacts (Habitat Units) Completed Mine RPG?	Long-Term Impacts (Habitat Units) Alternative Loss	Long-Term Impacts (Habitat Units) Could Habitat fall Below RPG?	Short-Term Impacts (HUs) Alternative Loss	Short-Term Impacts (HUs) Could Habitat fall Below RPG?
Woodchopper	45.1	[illegible]	[illegible]	[illegible]	0.0	•	< 1.5	•
Coal	66.7	[illegible]	[illegible]	[illegible]	0.0	•	< 0.5	•
Sam	39.3	[illegible]	[illegible]	[illegible]	< 3.2	•	< 5.5	•
Total	151.0	117.1 (77.5)	33.9	No	< 3.2	Yes	< 7.5	Yes
Fourth of July	32.3	29.3 (90.4)	3.1	Yes	< 6.0	Yes	< 3.0	Yes
Grand Total	183.3	146.4 (79.8)	[illegible]	•	< 3.2	•	< 10.3	•

* Resource Protection Goals (RPGs) were [illegible]

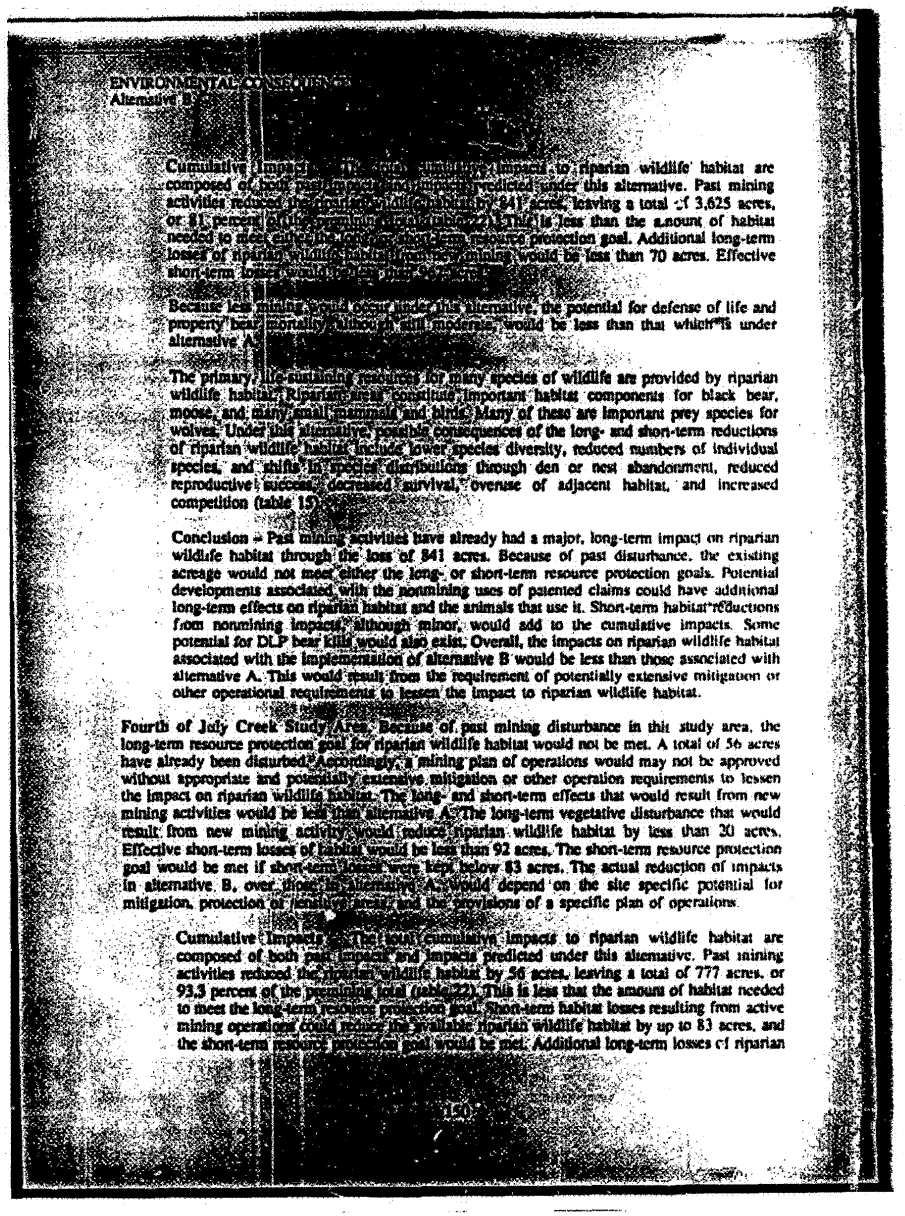
Under this alternative, an undetermined number of unpatented claims could be patented without patent restrictions. The impacts from possible nonmining developments on patented claims, such as cabins, subdivisions, or commercial lodges, could result in further permanent loss of habitat. Depending on the location and extent of developments, the construction and occupation of facilities could result in (1) further long-term loss of habitat, (2) further unavailability of habitat due to disturbance, and (3) a greater potential for defense of life and property (DLP) bear mortality.

Possible nonmining impacts inside the study area include the concentration of visitor use along mining access roads and trails. Because of the lack of other overland travel routes, visitors are likely to use mining roads, most of which follow riparian areas from the Yukon River inland. This use would not result in habitat reductions, however. Some sporadic, short-term reductions in available habitat near roads and trails would result due to disturbance.

Possible future impacts on habitat outside the study area include disturbance due to increased visitor use, new tour boat operators, or new privately-operated lodges along the Yukon River.

Riparian Wildlife Habitat

Woodchopper/Coal/Sam Creek Study Areas Under alternative B, resource protection goals would be used as one of the methods of analysis of impacts in evaluating a mining plan of operations. Because of past mining disturbance in this study area, the long- and short-term resource protection goals for riparian wildlife habitat would not be met. A total of 841 acres have already been disturbed. Accordingly, a mining plan of operations may not be approved without appropriate and potentially extensive mitigation or other operation requirements to lessen the impact on riparian wildlife habitat. The long- and short-term effects that would result from new mining activities would be less than alternative A. The long-term vegetative disturbance that would result from new mining activity would reduce riparian wildlife habitat by less than 70 acres. Effective short-term losses of habitat would be less than 962 acres. The actual reduction of impacts in alternative B, over those in alternative A, would depend on the site specific potential for mitigation, protection of sensitive areas, and the provisions of a specific plan of operations.



ENVIRONMENTAL CONSEQUENCES
Alternative B

Cumulative Impacts ... The total cumulative impact to riparian wildlife habitat are composed of both past impacts and impacts predicted under this alternative. Past mining activities reduced the riparian wildlife habitat by 841 acres, leaving a total of 3,625 acres, or 81 percent of the premining total (table 22). This is less than the amount of habitat needed to meet the long-term resource protection goal. Additional long-term losses of riparian wildlife habitat from mining would be less than 70 acres. Effective short-term losses would be [illegible]

Because less mining would occur under this alternative, the potential for defense of life and property hazards, although still present, would be less than that which is under alternative A.

The primary life sustaining resources for many species of wildlife are provided by riparian wildlife habitat. Riparian areas constitute important habitat components for black bear, moose, and many small mammals and birds. Many of these are important prey species for wolves. Under this alternative, possible consequences of the long- and short-term reductions of riparian wildlife habitat include lower species diversity, reduced numbers of individual species, and shifts in species distributions through den or nest abandonment, reduced reproductive success, decreased survival, overuse of adjacent habitat, and increased competition (table 15).

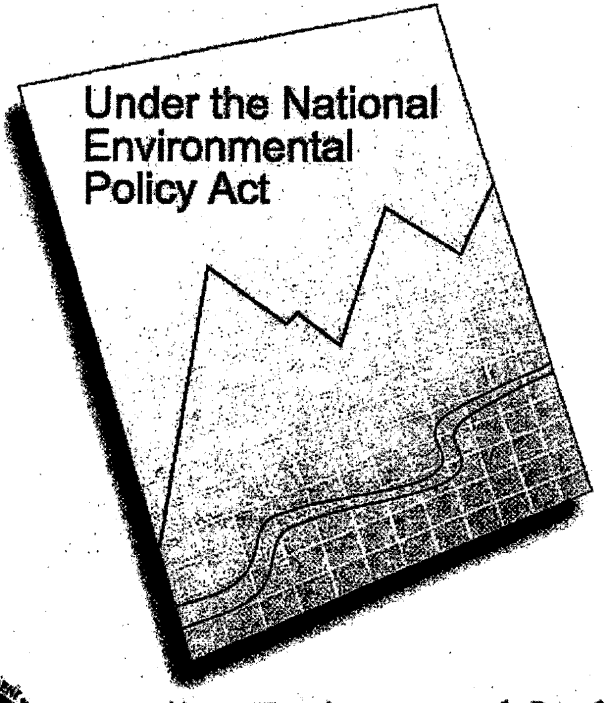
Conclusion - Past mining activities have already had a major, long-term impact on riparian wildlife habitat through the loss of 841 acres. Because of past disturbance, the existing acreage would not meet either the long- or short-term resource protection goals. Potential developments associated with the nonmining uses of patented claims could have additional long-term effects on riparian habitat and the animals that use it. Short-term habitat reductions from nonmining impacts, although minor, would add to the cumulative impacts. Some potential for DLP bear kills would also exist. Overall, the impacts on riparian wildlife habitat associated with the implementation of alternative B would be less than those associated with alternative A. This would result from the requirement of potentially extensive mitigation or other operational requirements to lessen the impact to riparian wildlife habitat.

Fourth of July Creek Study Area - Because of past mining disturbance in this study area, the long-term resource protection goal for riparian wildlife habitat would not be met. A total of 56 acres have already been disturbed. Accordingly, a mining plan of operations would may not be approved without appropriate and potentially extensive mitigation or other operation requirements to lessen the impact on riparian wildlife habitat. The long- and short-term effects that would result from new mining activities would be less than alternative A. The long-term vegetative disturbance that would result from new mining activity would reduce riparian wildlife habitat by less than 20 acres. Effective short-term losses of habitat would be less than 92 acres. The short-term resource protection goal would be met if short-term losses were kept below 83 acres. The actual reduction of impacts in alternative B, over those in alternative A, would depend on the site specific potential for mitigation, protection of sensitive areas, and the provisions of a specific plan of operations.

Cumulative Impacts ... The total cumulative impacts to riparian wildlife habitat are composed of both past impacts and impacts predicted under this alternative. Past mining activities reduced the riparian wildlife habitat by 56 acres, leaving a total of 777 acres, or 93.3 percent of the premining total (table 22). This is less that the amount of habitat needed to meet the long-term resource protection goal. Short-term habitat losses resulting from active mining operations could reduce the available riparian wildlife habitat by up to 83 acres, and the short-term resource protection goal would be met. Additional long-term losses of riparian

Considering Cumulative Effects

Under the National Environmental Policy Act



Council on Environmental Quality
Executive Office of the President

EXHIBIT 2

4

DETERMINING THE ENVIRONMENTAL CONSEQUENCES OF CUMULATIVE EFFECTS

PRINCIPLES

- Address additive, countervailing, and synergistic effects.
- Look beyond the life of the action.
- Address the sustainability of resources, ecosystems, and human communities.

The diversity of proposed federal actions and the environments in which they occur make it difficult to develop or recommend a single method or approach to cumulative effects analysis. In this chapter, we attempt to provide insight into and general guidelines for performing analyses needed to determine the environmental consequences of cumulative effects. We assume the analysis has already been scoped, including stipulating geographic and time boundaries (see Chapter 2), and that appropriate data have been gathered for the resources, ecosystems, and human communities of concern (see Chapter 3). Reference is made, when appropriate, to specific cumulative effects analysis methods described in Chapter 5 and Appendix A.

The analyst must ensure that the resources identified during scoping encompass all those needed for an analysis of cumulative effects. The analyst must also ensure that the relevant past, present, and reasonably foreseeable future actions have been identified. As an iterative process, cumulative effects analysis often identifies additional resources or actions involved in cumulative effects during the analysis phase. In addition to confirming the resources and actions to be considered, the analyst should complete the following specific steps to determine the environmental consequences of the cumulative effects:

Step 8 Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.

Step 9 Determine the magnitude and significance of cumulative effects.

Step 10 Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.

Step 11 Monitor the cumulative effects of the selected alternative and adapt management.

CONFIRMING THE RESOURCES AND ACTIONS TO BE INCLUDED IN THE CUMULATIVE EFFECTS ANALYSIS

Even though scoping has identified likely important cumulative effects, the analyst should include other important cumulative effects that arise from more detailed consider-

Thresholds and criteria (i.e., levels of acceptable change) used to determine the significance of effects will vary depending on the type of resource being analyzed, the condition of the resource, and the importance of the resource as an issue (as identified through scoping). Criteria can be quantitative units of measure such as those used to determine threshold values in economic impact modeling, or qualitative units of measure such as the perceptions of visitors to a recreational area. No matter how the criteria are derived, they should be directly related to the relevant cause-and-effect relationships. The criteria used, including quantitative thresholds if appropriate, should be clearly stated in the assessment document.

Determinations of significance in an EA or an EIS are the focus of analysis because they lead to additional (more costly) analysis or to inclusion of additional mitigation (or a detailed justification for not implementing mitigation). The significance of adverse cumulative effects is a sensitive issue because the means to modify contributing actions are often outside the purview of the proponent agency. Currently, agencies are attempting to deal with this difficult issue by improving their analysis of historical trends in resource and ecosystem condition. Even where cumulative effects are not deemed to be significant, better characterization of historical changes in the resource can lead to improved designs for resource enhancement. Where projected adverse effects remain highly uncertain, agencies can implement adaptive management—flexible project implementation that increases or decreases mitigation based on monitoring results.

AVOIDING, MINIMIZING, AND MITIGATING SIGNIFICANT CUMULATIVE EFFECTS

If it is determined that significant cumulative effects would occur as a result of a proposed action, the project proponent should avoid, minimize, or mitigate adverse effects by modifying or adding alternatives. The proponent should not overlook opportunities to enhance resources when adverse cumulative effects are not significant. The separation of responsibilities for actions contributing to cumulative effects makes designing appropriate mitigation especially difficult. In the case of the Lackawanna Industrial Highway, the Federal Highway Administration and Pennsylvania Department of Transportation sponsored development of a comprehensive plan for the valley that provides a mechanism for ensuring that secondary development accompanying construction of the highway would protect valued resources, ecosystems, and human communities (see box).

By analyzing the cause-and-effect relationships resulting in cumulative effects, strategies to mitigate effects or enhance resources can be developed. For each resource, ecosystem, and human community of concern, the key to developing constructive mitigation strategies is determining which of the cause-and-effect pathways results in the greatest effect. Mitigation and enhancement strategies that focus on those pathways will be the most effective for reducing cumulative effects.

It is sometimes more cost-effective to mitigate *significant effects after they occur.* This might involve containing and cleaning up a spill, or restoring a wetland after it has been degraded. In most cases, however, avoidance or minimization are more effective than remediating unwanted effects. For example, attempting to remove contaminants from air or water is much less effective than preventing pollution discharges into an airshed or watershed. Although such preventative approaches can be the most (or only) effective means of controlling cumulative effects, they may require extensive coordination at the regional or national scale (e.g., federal pollution control statutes).

United States Environmental Protection Agency

EPA Region 3
Philadelphia, PA

EPA/903/R-00/013
October 2000

Mountaintop Mining/Valley Fill Environmental Impact Statement

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EXHIBIT 3

EXECUTIVE SUMMARY

This document is a preliminary draft of the Mountain Top Mining/Valley Fill EIS referenced in the Notice of Intent published in the February 5, 1999 edition of the Federal Register (64 FR5778, 02/05/99). This is a "programmatic" EIS in that it evaluates broad federal actions such as the adoption of new or revised agency program guidance, policies or regulations. The purpose of the EIS, as stated in the above referenced edition of the Federal Register, is:

> *"to consider developing agency policies, guidance, and coordinated agency decision-making processes to minimize, to the maximum extent practicable, the adverse environmental effects to waters of the Unites States and to fish and wildlife resources affected by mountaintop mining operations, and to environmental resources that could be affected by the size and location of excess spoil disposal sites in valley fills"*

In the process of conducting this EIS, alternatives are proposed to address the issues and concerns which initiated the NEPA action. In order to fully develop and evaluate the alternatives, relevant general and technical information were gathered together. Where data did not exist, studies were initiated, whenever possible, to fill the information gaps. With suitable background information in hand and results from the technical studies, the alternatives were evaluated and their social, economic, and environmental impacts (a.k.a. environmental consequences) were identified. The draft report is being issued for public review and comment. The preferred alternative will not be determined until the final EIS is circulated for review and comment.

The term "mountaintop mining," as used in this EIS generally refers to three different kinds of surface coal mining operations (contour mining, area mining and mountaintop removal mining) that result in the disposal of excess spoil in valley areas. These excess spoil disposal areas are known as valley fills. This use of the phrase "mountaintop mining" contrasts with the SMCRA term "mountaintop removal mining," which legally refers to a particular method of mining where a basal coal seam is completely removed from one side of a mountain to the other.

During the course of surface coal mining, overburden is removed to reveal the underlying coal. The overburden typically increases in volume during the removal process due to broken rock. As mining proceeds, completed areas are backfilled with previously removed overburden, but due to limitations on the steepness and height to which broken rock may be placed to achieve a stable slope, and the steep topography of the region, excess spoil generally results. Hauling the spoil away to other sites is typically not economically feasible. If by chance, the active mining operations are adjacent to abandoned mined lands, excess spoil may be used for reclamation of mine benches associated with the formerly mined site. More frequently than not, however, such fortuitous circumstances do not exist and it is necessary to construct valley fills to dispose of the excess spoil. These fills have advantages and disadvantages. One advantage is that the disposal area can be located very close to the mining activities thereby minimizing hauling costs. Mining operations that involve sequential ridges receive an additional benefit from the valley fills in that filled ravines facilitate moving heavy equipment from one ridge to the next. The valley fills generally result in an increase of level land and depending on the post mining land use, this can also be advantageous. One major disadvantage of valley fills is that the process destroys the portions of streams and headwater areas they cover and may substantially effect downstream portions of the watershed.

The amount of excess spoil generated during mining is related to a number of factors including rock type (sandstone "swells" more than shale during removal and fracture) and mining method (mountaintop removal mining typically has the highest overburden to coal stripping ratio). Excess spoil generation depends on other factors as well (including topography) and, as such, the quantities generated are very site specific.

Excess spoil disposal capacity is a prime consideration in the evaluation of steep sloped sites for potential mining projects. Physical or regulatory restrictions to excess spoil disposal may restrict the type and extent of surface mining. Stricter requirements would favor contour operations over area and mountaintop removal methods or might preclude surface mining of a site altogether. In this case, underground mining becomes the only option for coal extraction. For shallow or thin seams, underground mining is frequently not a viable alternative and, consequently, restrictions to excess spoil disposal may render some coal reserves unmineable.

The study area selected for the EIS is a unique and richly diverse ecological environment extending over portions of West Virginia, Kentucky, Virginia and Tennessee. It is located within the Appalachian Coalfield Region of the Appalachian Plateau physiographic province and Bituminous Coal Basin. As the name implies, this region is known for the substantial deposits of coal that lie beneath the surface. Physically, two factors must be coincident in order for mountaintop mining to occur and for excess spoil to be generated: steep terrain and sufficient contiguous coal reserves located close enough to the tops of mountains and ridges to justify large scale mining. In West Virginia, this close combination exists in the southern half of the state and is most frequently aligned with the existence of the Coalburg coal seam. In Kentucky, Virginia and Tennessee, this combination of factors also exists but delineation is not quite as simple because of more complex geology. The boundaries of the study area described above were dictated by the presence of valley fills or the potential for this method of spoil disposal in the future.

The study area is unique in the world because characteristically northern species coexist with their southern counterparts, and thus boast enormous richness and diversity. Individual watersheds and mountain peaks within the Appalachian ecoregions have been isolated for millions of years. That, in combination with relatively mild environmental conditions, has provided a perfect setting for the evolution of unique species of plants, invertebrates, salamanders, crayfishes, freshwater mussels, and fishes. These species include a great number of organisms, including terrestrial, aquatic, and plant species, which are supported by the Appalachian ecoregions (Stein et.al., 2000). In fact, the southern Appalachians boast the richest salamander fauna in the world (Petranka, 1999, Stein et al., 2000).

The Appalachian ecoregion forests, which cover 85 percent of the study area, represent a forest type that was once widespread in the northern hemisphere. These rich deciduous forests have been profoundly altered over the past few centuries and are becoming increasingly threatened. Cove forests tend to dominate the steep-sided, mesic (relatively moist) hollows while pine-heath communities dominate the more xeric (dry) ridges and peaks. Various oak forests dominate the flats and more open slopes that are intermediate between mesic and xeric conditions. The mixed mesophytic forest of the Appalachian coal fields supports one of the richest floral, breeding bird, mammal, and amphibian communities of any upland eastern U.S. forest type (Hinkle et al., 1989;

cited in McComb et al., 1991). It has been described as "the most biologically diverse ecosystem in the southeastern United States" (Hinkle et al., 1993). Further, West Virginia is considered the primary component of a major geographic area of importance to neotropical migratory song birds in the Northeast.

Increased concern about mountaintop mining operations occurred in 1997 and 1998, both in the media, by the Federal agencies, and in notices of intended litigation related to the subject. An interagency forum in 1997 hosted by EPA, called the Federal Regulatory Operations Group, or FROG was held and an interagency working team was formed by OSM, EPA, COE, and FWS in early 1998. Several studies were designed to prepare a consistent fill inventory, look at stream impacts, fill stability, and evaluate regulatory program inconsistencies in mitigation and other mining program requirements.

Press coverage of public issues with mountaintop mining surfaced beginning in August1997, in television, periodicals, and newspapers, including U.S. News and World Report, ABC's "Night Line" program, as well as the Charleston (WV) Gazette, Washington Post, New York Times, Lexington (KY) Herald-Leader, and Louisville Courier-Journal. In 1998, OSM initiated oversight activity evaluating how the West Virginia, Kentucky, and Virginia SMCRA-delegated programs were approving coal mines that proposed not to restore to "approximate original contour," which resulted in more numerous and larger valley fills. EPA, began utilizing the CWA authority under the Section 402 (National Pollution Discharge Elimination System permit) to object to the size and location of valley fills because of impacts to streams. EPA also began to evaluate the applicability of the existing framework under the COE Nationwide versus Individual Permit authority under CWA 404.

The notification by citizens and the West Virginia Highlands Conservancy of the intent to sue the State (WVDEP) and Federal (COE) government in West Virginia occurred in early 1998. Litigation ensued in July 1998 [Bragg, et al. v. Robertson, et al., Civ. No. 2:98-0636 [S.D.W. Va]. Generally, the lawsuit concerned allegations that valley fills associated with surface coal mining operations result in the loss and degradation of West Virginia streams, and that the Clean Water Act (CWA) and Surface Mining Control and Reclamation Act (SMCRA) were being improperly applied. The plaintiffs argued that the current practice of valley filling, both individually and cumulatively, caused more than a minimal impact to the "waters of the US." Under the CWA, activities causing more than a minimal impact are not eligible for a Nationwide or General Permit under CWA Section 404, but must apply the more rigorous standards imposed under the CWA 404 Individual Permitting process. As part of this claim, the plaintiffs alleged that the COE also violated the National Environmental Policy Act (NEPA), by failing to analyze the adverse and cumulative environmental impacts of valley fills and surface mining activities in West Virginia. In December 1998, the plaintiffs and the COE, EPA, OSM, FWS and the WVDEP agreed to settle the CWA portion of the case. The settlement agreement covers two primary objectives, which are increased scrutiny of permits involving valley fills and performance of an EIS.

To aid in the objective of increased scrutiny of permits, a Memorandum of Understanding (MOU) Among the USOSM, USEPA, COE, USFWS, and WVDEP for the Purpose of Providing Effective Coordination in the Evaluation of Surface Coal Mining Operations Resulting in Placement of Excess Spoil Fills in the Waters of the United States establishes a process for improving coordination in the

review of permit applications. The entire MOU is provided in an appendix to this EIS. The signatory agencies entered into the agreement with the goals of enhancing cooperation and communication in order to ensure compliance with all applicable federal and state laws, improving time lines and predictability of the permit process, and minimizing adverse environmental impacts from surface coal mining operations resulting in placement of excess spoil fills in the waters of the United States. The experience of the agencies resulting from the increased permit scrutiny have been considered in the development of this EIS. Many of the efforts in this so-called "interim permitting" period identified areas where the agencies, the regulated community, and the environment would benefit from coordinated or clarified procedures, better baseline data collection, improved analysis of potential impacts, and different sequence of processes.

A separate but related investigation was initiated in June 1998 by West Virginia Governor Cecil Underwood. Governor Underwood created a task force to study the effects of mountaintop mining. The task force was organized into the following three committees:

1) Impact to the Economy
2) Impact on the Environment
3) Impact on the People

The findings of the task force were published in December 1998. The recommendations included:

- The need for more research on the environmental and economic effects of mountaintop mining.
- Establishment of a state office to regulate the impact of mountaintop-removal mining on people.
- Establishment of a nationwide stream mitigation policy.
- Discontinuing of fish and wildlife habitat as a postmining land use (PMLU).
- Development of commercial forestland as a preferred PMLU.
- Rigorous enforcement of existing regulatory requirements, including water quality and approximate original contour (AOC) guidelines.

In preparation for conducting the EIS, the agencies invited comments and suggestions on the scope of the analysis. Many people took advantage of the opportunity to participate in the public meetings. The public was also invited to provide written comments. Six hundred forty-one people provided verbal statements at the public meetings while ninety-five written comment letters were submitted. Scoping meetings were held in Summersville, Charleston and Logan, West Virginia, on February 23, 24, and 25, 1999, respectively. Concerns expressed in these public scoping meetings described economic and social impact concerns; policy and regulatory review issues; EIS process questions; and a broad range of environmental impacts associated with mountaintop mining/valley fill operations. Significant aquatic, terrestrial, and community impact concerns were raised during the scoping sessions held for this EIS. Issues of concern expressed in public comments received by the EIS Steering Committee during the scoping process have been summarized into the following aquatic, terrestrial, and community impact issues.

Aquatic Issues

Issue 1: *Stream loss and adverse surface and groundwater impacts from valley fills and other mountaintop mining operations.*

Issue 2: *Ability of mined area reclamation practices to restore stream habitat and aquatic functions impacted by mining.*

Issue 3: *Effectiveness of compensatory mitigation projects to make up for loss of stream habitat and aquatic functions.*

Issue 4: *Protecting watersheds from cumulative effects of mountaintop mining/valley fill activities and other land disturbances.*

Terrestrial Issues

Issue 5: *Concerns that current mountaintop mining reclamation practices introduce and increase exotic and invasive plant species.*

Issue 6: *Effects of mountaintop mining and resulting deforestation/forest fragmentation on plants and wildlife, including unique/endangered species, and on biodiversity and sustainability.*

Community Issues

Issue 7: *Effects of blasting on homes, water wells, and quality of life.*

Issue 8: *Potential health risks of airborne dust and fumes from blasting and other mining operations*

Issue 9: *Effects from mountaintop mining on flooding of downstream communities*

Issue 10: *Valley fill stability.*

Issue 11: *Ability for reclaimed mined land to provide an economic or social benefit to coal field communities.*

Issue 12: *Effects of Mining on Scenery and Culturally Significant Landscapes.*

Issue 13: *Economic Impacts of Reducing Mining*

Issue 14: *Environmental Justice*

A programmatic review process was undertaken by the agencies shortly after the scoping process was completed in order to assess those program areas where improvements could be made, and specific programmatic actions were formulated to address the identified concerns and problem areas.

The Program Review Group, chartered by and including the Steering Committee, developed the actions representing improvements to baseline regulatory programs. Ideas for government action to address the potential environmental impacts of mountaintop mining and valley fills in the study area were developed in a series of meetings that centered around three domains: aquatic; terrestrial; and community/human. Each domain covered all relevant values; for example, the terrestrial domain meetings covered forests, and terrestrial biota. Pursuant to NEPA, values are defined as aesthetic, historical, cultural, economic, social, and health considerations relevant to the proposed action and the alternatives. The Program Review Group went through a three step process where they: 1) summarized existing State and federal policies and regulations related to mountaintop mining/valley filling; 2) brainstormed potential changes to existing policies, regulations, and program coordination to improve environmental protection; and 3) consolidated/summarized alternatives. The subsequent actions, which are associated with one or more action alternative being addressed within the EIS, represent specific programmatic changes that could be undertaken to minimize the environmental impacts of mountaintop mining/valley fill operations.

Alternative A is the baseline alternative, which reflects agency policies, guidance, and decision making processes in effect prior to the December 1998 settlement agreement between the plaintiffs and the COE, USEPA, USOSM, USFWS, and WVDEP. Presettlement conditions are how agencies may have continued to operate if there were no lawsuit. This alternative also reflects the environmental consequences that would be expected to occur if the agencies were to revert back to presettlement programs should the current Federal Court ruling in Bragg v. Robertson (Bragg, Civ. No. 2:98-0636 S.D. WV) be overturned.

Alternative B would restrict fills to the uppermost reaches of the watershed, and recommend improvements to other baseline regulatory programs governing mountaintop mining operations. For study purposes, the watershed size being evaluated ranges from 0-75 acres. Under this alternative, specific action items have been proposed primarily in response to terrestrial and community impact concerns raised during the scoping process. Several aquatic related action items have also been proposed under this alternative, as effluent discharges from sediment ponds may still be anticipated to occur downstream of the fills.

Alternative C would authorize the placement of fill further downstream, possibly under the Corps of Engineer's CWA Section 404 Nationwide Permit Program, provided certain fill minimization requirements are met (such as AOC Plus Fill Optimization and/or Section 404(b)(1) avoidance tests). The current Federal Court ruling in Bragg v. Robertson (Bragg, Civ. No. 2:98-0636 S.D. WV) would require one or more rule changes to allow fills within the intermittent stream zone. For study purposes, the watershed size being evaluated ranges from 75 - 250 acres. This alternative differs from Alternative B in that additional aquatic related action items have been proposed.

Alternative D is similar to Alternative A in that fills would not be restricted to any particular stream segment, but it differs substantially from Alternative A in that many new programmatic actions would be implemented to reduce the aquatic, terrestrial, and community impact concerns raised during the scoping process. The current Federal Court ruling in Bragg v. Robertson (Bragg, Civ. No. 2:98-0636 S.D. WV) would also require one or more rule changes to allow fills within the intermittent and/or perennial stream zone.

IV. ALTERNATIVES

Significant aquatic, terrestrial, and community impact concerns were raised during the scoping sessions held for this EIS. A programmatic review process was undertaken by the agencies shortly after the scoping process was completed in order to assess those program areas where improvements could be made, and specific programmatic actions were formulated to address the identified concerns and problem areas. The subsequent actions, which are listed under each action alternative being addressed within the EIS, represent specific programmatic changes that could be undertaken to minimize the environmental impacts of mountaintop mining/valley fill operations. A description of the problem area being addressed by each action is included under each action item. The alternatives were developed to consider the full range of response options available to the agencies.

Alternative A is the baseline alternative, which reflects agency policies, guidance, and decision-making processes in effect prior to the December 1998 settlement agreement between the plaintiffs and the COE, USEPA, USOSM, USFWS, and WVDEP. Pre-settlement conditions are how agencies may have continued to operate if there were no lawsuit. This alternative also reflects the environmental consequences that would be expected to occur if the agencies were to revert back to presettlement programs should the current Federal Court ruling in *Bragg v. Robertson (Bragg,* Civ. No. 2:98-0636 S.D. WV*)* be overturned.

Alternative B would restrict fills to the uppermost reaches of the watershed, and recommend improvements to other baseline regulatory programs governing mountaintop mining operations. For study purposes, the watershed size being evaluated ranges from 0-75 acres. Under this alternative, specific action items have been proposed primarily in response to terrestrial and community impact concerns raised during the scoping process. Several aquatic related action items have also been proposed under this alternative, as effluent discharges from sediment ponds may still be anticipated to occur downstream of the fills.

Alternative C would authorize the placement of fill further downstream, possibly under the Corps of Engineer's CWA Section 404 Nationwide Permit Program, provided certain fill minimization requirements are met (such as AOC Plus Fill Optimization and/or Section 404(b)(1) avoidance tests). The current Federal Court ruling in *Bragg v. Robertson (Bragg,* Civ. No. 2:98-0636 S.D. WV*)* would require one or more rule changes to allow fills within the intermittent stream zone. For study purposes, the watershed size being evaluated ranges from 75 - 250 acres. This alternative differs from Alternative B in that additional aquatic related action items have been proposed.

Alternative D is similar to Alternative A in that fills would not be restricted to any particular stream segment, but it differs substantially from Alternative A in that many new programmatic actions would be implemented to reduce the aquatic, terrestrial, and community impact concerns raised during the scoping process. The current Federal Court ruling in *Bragg v. Robertson (Bragg,* Civ. No. 2:98-0636 S.D. WV*)* would also require one or more rule changes to allow fills within the intermittent and/or perennial stream zone.

There are actions common to both Alternatives C and D. There are actions common to Alternatives B, C, and D. The actions comprising the alternatives are presented in Table IV.-1.

IV. Alternatives

It should be noted that no alternative has been identified as a preferred alternative at this time. The preferred alternative and final set of recommended action items will not be determined until the final EIS is circulated for public review and comment.

Rebecca Hanmer
01/18/01 06:18 PM

To: Mary Josie Blanchard <MBLANCHA@OSMRE.GOV>
cc: mrobinso@osmre.gov, cindy_tibbott@fws.gov, William Hoffman/R3/USEPA/US@EPA, Rich Kampf/R3/USEPA/US@EPA, rodney.l.woods@lrdor.usace.army.mil, rhunter@mail.dep.state.wv.us
Subject: Re: Did the status reports go out yet?

The MTM/VF executive summary did not go out. Russ Hunter and I were working on last minute drafting but we received calls from David Satterfield in the Governor's office saying that the WV Legislative leaders were really upset that we were breaking our agreement not to issue the EIS without completing all the studies. The Governor's office felt caught in the middle. We went back and forth a couple of times to try and explain the difference between the EIS and the status reports we were working on. However, with the shortness of time, it has been impossible to have a productive exchange of views. Given this, I told Mr. Satterfield around 5:30 pm that EPA would not issue anything until we had had an opportunity to talk through the "don't release anything" issue with the Legislative leaders. (We need to rendezvous before setting up a meeting.) That means Brad Campbell won't sign a letter transmitting the status report before he leaves his office tomorrow, unless Russ Hunter can achieve a miracle.

I regret we had to do this, especially in view of Bill Hoffman's hard work and the great input and editorial support we have been getting from OSM and other agencies. We did send the January 16 draft to the WV Governor's office and to Sen. Jackson but I don't know that the people who reacted so strongly ever saw our product.

You will recall that Sen. Tomblin and Speaker Kiss sent us a letter in December asking us not to issue the draft EIS prior to completion of the technical studies. Brad Campbell responded on Jan. 2 and said the following:

"To respond to your request...the participating agencies have decided that in lieu of releasing a DEIS in January 2001, the agencies will prepare a status report for release in early to mid-January 2001. The status report will not affect the ongoing process for completing the DEIS, and we will continue seeking comments from the public and affected constituencies on specific technical studies as they become available. A revised schedule for release of the DEIS will be provided to you and the public once the schedule for the underlying technical studies can be taken into account."

I can be reached tomorrow in Washington in the late afternoon (202 260-4470) if anyone wants to discuss this with me, and I will ask Bill H. to set up an EIS Steering Committee call. PS, everyone, we really need to come to closure on the plan and timetable for the macroeconomic study.

Cheers, Rebecca

EXHIBIT 4

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

Dear Citizen:

I am writing you again to give an update on the environmental impact statement (EIS) which four Federal agencies and the State of West Virginia are preparing on mountaintop mining and valley fills. The four Federal agencies are EPA, the U.S. Army Corps of Engineers, the U.S. Office of Surface Mining and the U.S. Fish and Wildlife Service. The Division of Environmental Protection is the lead agency for the State of West Virginia, and we have established cooperative activities with the Kentucky and Virginia surface mining and environmental programs.

It was our intention to publish the draft EIS in December 2000. Regrettably, it will not be possible to publish the document at this time because a few of the technical studies, particularly the economic study of mining restrictions, are still incomplete. Instead, the agencies have prepared a status report to provide a snapshot of the Federal and State initiatives that have been undertaken to date, and to describe work remaining before the draft EIS can be released. An Executive Summary highlighting key findings within the Status Report is attached. The longer report will be made available on EPA's web page at www.epa.gov/region3/mtntop at a later date.

There are two other reports that have been issued in 2000 that I wish to bring to your attention which heighten the importance of finding better controls on mountaintop mining and valley fills in Appalachian forest habitats. The first report, Precious Heritage, The Status of Biodiversity in the United States, by The Nature Conservancy and Association for Biodiversity Information (Bruce A Stein, et al., editors), highlights the southern Appalachians as an area of "enormous biological diversity and a center of richness and rarity in the United States." According to this study, "Southern Appalachia forests represent the last American stronghold of a forest type once widespread in the northern hemisphere." The only other similar surviving area is in eastern China. The report also points out that, of the more than 2000 small watershed areas in the continental U.S., 87 stand out as "hot spots", harboring 10 or more vulnerable or imperiled freshwater species. These hot spots are concentrated in the southeastern U.S., in the Tennessee, Ohio, Cumberland and Mobile River basins, with the upper Clinch River on the Virginia-Tennessee border surpassing all other areas (48 imperiled and vulnerable fish and mussel species).

The second report, The Bird Community Index: A Tool for Assessing Biotic Integrity in the Mid-Atlantic Highlands, was based on work by the Penn State Cooperative Wetlands Center for EPA's Office Research and Development, as part of the Mid-Atlantic Integrated Assessment (MAIA). The purpose of the study was to show how the types of birds found in the area indicate its ecological conditions. The highlands study area covered central and western Pennsylvania, all of West Virginia, and western Virginia. According to the project summary, the Penn State studies found that only 16 and 27% of the highlands is in excellent or good ecological condition. Further "Sites in good or excellent ecological condition were usually associated with an average of 87% forest cover" and "Sites in excellent condition had a taller and more closed tree canopy (a mature forest) than sites in good condition." The mountaintop/valley study area contains the greatest percentage of sites in excellent and good ecological condition areas in the Mid-Atlantic Highlands.

Thank you for your continued interest in the mountaintop mining/valley fill issue. Public participation is an essential part of the EIS process, and your continued interest and involvement are much appreciated. Should you have any questions on this topic, or on the agencies' findings to date, please contact Bill Hoffman at the above address. Bill can also be contacted at (215) 814-2995 or at Hoffman.William@epa.gov.

Sincerely,

Bradley M Campbell
Regional Administrator

Enclosure

Mountaintop Mining/Valley Fill Status Report
Executive Summary
January 16, 2001

Introduction:

Surface coal mining in Kentucky, Tennessee, Virginia, and West Virginia is conducted by a variety of mining methods and in different topographic settings. Surface mining in the steep slope areas of these central Appalachian coalfield states is referred to as "mountaintop mining." Typical surface coal mining removes soil and rock (called spoil or overburden) above the coal seam, and a portion of the overburden is returned to the mining area to reclaim the site. In steep slope areas, because the solid rock material over the coal seam increases in volume when it is broken, it is not possible to return all of the spoil to its original location after mining. The portion that can't be returned to reclaim the mined area is called "excess spoil." In steep slope Appalachia, excess spoil is often placed in valleys adjacent to the mining area. Thus, excess spoil disposal areas are often called "valley fills."

Concerns over the impacts from mountaintop mining/valley fill operations in Appalachia have been the topic of much discussion in the media, the courts, and at the State and Federal level. Widespread national and local media coverage of public issues surrounding these operations first surfaced in August 1997. Teams consisting of staff from the Environmental Protection Agency (EPA), Office of Surface Mining (OSM), Army Corps of Engineers (COE), and the Fish and Wildlife Service (FWS) were formed in early 1998 to address concerns voiced over these types of mining operations. Later in 1998, several citizens and the West Virginia Highlands Conservancy sued the West Virginia Division of Environmental Protection (WVDEP) and the COE. The suit alleged that valley fills resulted in the loss and degradation of streams, and that the Clean Water Act (CWA) and Surface Mining Control and Reclamation Act (SMCRA) were being improperly applied. The four federal agencies and the WVDEP agreed to a partial settlement of the suit in December 1998. The agencies agreed to prepare an Environmental Impact Statement (EIS) to consider new guidance and policies to minimize the adverse impacts of mountaintop mining and valley fills. The agreement stated an intent to complete the EIS within a two-year time frame. The agencies also agreed to increase scrutiny of new permit applications for mountaintop mining and valley fills until the EIS was completed. Permitting requirements for fills in watersheds greater than 250 acres are more rigorous under these interim procedures.

The EIS process initiated by the agencies included a review of existing information regarding the economic and environmental impacts of mountaintop mining and valley fills, and meetings with various academic experts. Certain data was found to be either lacking or inadequate to address all EIS concerns, and a number of actions (studies and forums) were initiated to address these data gaps. Concurrently, the agencies evaluated program requirements under the various Federal and State laws and regulations, and assessed possible areas for improvement.

In December 2000, the agencies concluded that the draft EIS could not be published within the original two-year time frame because the technical studies, particularly the economic study of mining restrictions, were still incomplete. Because of the delay in completing the draft EIS, the

agencies prepared a status report to update the public on the Federal and State initiatives that have been undertaken to date, and to describe work remaining before release of the draft EIS. The following section summarizes the highlights of the status report, which will be made available on EPA's mountaintop mining web page at www.epa.gov/region3/mtntop at a later date.

Key Findings of Agency Initiatives:

- The inventory of fills permitted since 1985 includes 5,858 valley fills proposed in the EIS study area (4,421 in Kentucky; 945 in West Virginia; 439 in Virginia; and, 53 in Tennessee). Only 4,057 of these proposed fills have been constructed as of late 2000. This inventory indicates that the majority of valley fills proposed are in watersheds draining areas less than 250 acres in size. In Kentucky, 81% of fills were in watersheds smaller than 75 acres; 14% were in watersheds between 75 and 250 acres; and 5% were in watersheds larger than 250 acres. In Virginia, 70% of fills were in watersheds smaller than 75 acres; 26% were in watersheds between 75 and 250 acres; and 4% were in watersheds larger than 250 acres. In West Virginia, 59% of fills were in watersheds smaller than 75 acres; 34% were in watersheds between 75 and 250 acres; and 7% were in watersheds greater than 250 acres. In Tennessee, 79% of fills were in watersheds smaller than 75 acres; 19% were in watersheds between 75 and 250 acres; and 2% were in watersheds greater than 250 acres.

- The agencies' experience with permitting indicates that mining companies can do more to avoid filling long stream segments. As part of a consent decree, WVDEP adopted new rules for minimizing the placement of fill in stream valleys. Since the December 1998 Settlement Agreement, 46 permits in West Virginia were approved to place fill in streams in watersheds smaller than 250 acres.

- Using a hydrologic technique developed by West Virginia to establish the ephemeral point in a stream, the mining technology team found that limiting valley fills to the ephemeral stream segment caused significant or total loss of the coal resource for 9 of 11 mine sites studied, when compared to original mining plans. All of the coal resource was lost for 6 of the 11 mine sites. As this was a limited study on a small population of mining sites, a broader study is being undertaken for the EIS to evaluate the economic effects of limiting valley fills to various watershed sizes (35 acres, 75 acres, 150 acres, and 250 acres). This study is still underway, and no results are available at this time.

- An extensive technical review concluded that valley fills are generally stable and massive failures are rare. Only twenty documented failures occurred out of more than 4,000 fills constructed since 1982. While fill failures are costly to repair, no loss of life nor significant private property damage have resulted from these movements.

- Hydrologic modeling studies of selected fills found that peak storm water flows are slightly higher during and after mining. Whether or not increased peak flows results in flooding requires site- and storm-specific analysis. The agencies continue to assess the

proper level of flooding analysis required for permit applications and approvals. Preliminary hydrologic results from a separate field study indicate that runoff and ground water appear to be stored in valley fills. The study, to date, appears to show that fills tend to increase the base flow of the stream and decrease the peak flow during a storm event. Water temperature in streams in filled watersheds was less variable than in unfilled watersheds. Substrate material was generally finer in streams in filled watersheds compared to unfilled watersheds.

The studies for the EIS have evaluated the function and value of headwater streams in steep slope Appalachia. At an EIS-sponsored symposium, scientists reported that headwater streams are extremely important to the health of the entire aquatic ecosystem downstream. Biological sampling in West Virginia found aquatic organisms in the uppermost reaches of watersheds, even in "ephemeral" stream zones which flow only as a result of rain or snow melt. Ephemeral/intermittent and intermittent/perennial boundaries were also found to be at much higher points (i.e. in smaller watersheds) than previously thought. Studies conducted by EPA showed impairment of aquatic organisms below valley fills, which may be the result of adverse water quality changes. Monitoring protocols were also developed by the agencies to improve chemical and biological data collection and assessment at mining operations.

A symposium assembled ecological and stream restoration experts to explore aquatic resource re-creation on mine sites. Although opportunities exist to reshape mining land forms to a more natural configuration and to incorporate state-of-the-art stream restoration methods in mining reclamation, it is difficult to reconstruct free flowing streams on or adjacent to mined sites. The difficulty results from the inability to capture sufficient groundwater flows necessary to provide a constant source of flow for the new stream. Only with careful and potentially costly planning and implementation will flows be sufficiently captured such that a new stream can be created on the mined site.

Many published studies report that West Virginia and the Appalachian Highlands are characterized by some of the best forest habitat in the United States. Loss of forest habitat and/or forest fragmentation, because of mining or other man-made disturbances, is a national, regional, and local environmental concern. In studies conducted for the EIS, researchers examined plant succession on reclaimed areas, soil health on mined sites, and effects of mountaintop mining/valley fill operations on herpetiles (e.g., snakes, salamanders, frogs, etc.), birds, and small mammals. Researchers found that surface mining significantly alters terrestrial ecology. Plants and wildlife that require forest habitats are replaced by those that inhabit grasslands. Fragmentation-sensitive bird species such as the cerulean warbler, Louisiana waterthrush, worm-eating warbler, black-and-white warbler, and yellow-throated vireo will likely be negatively impacted as forest habitat is lost and fragmented from mountaintop mining/valley fill operations. In addition, the studies found that the natural return of forests to mountaintop mines reclaimed with grasses under hay and pasture or wildlife postmining land uses occurs very slowly. Full reforestation across a large mine site in such cases may not occur for hundreds of years. State-of-the-art soil reclamation techniques and tree plantings would

be necessary to more quickly establish forests and counter the effects of forest fragmentation on wildlife.

Even before the Environmental Impact Statement, the West Virginia Governor's Task Force focused on the need to restore forests after mining, both for environmental purposes and as an economic resource. In technical studies conducted for this EIS, soil scientists and foresters examined State and Federal regulations, policies, and practices; relevant scientific literature; and talked with soils and forestry experts to assess the effectiveness of current reclamation practices to promote the growth of trees on reclaimed mined lands. The study determined that reclamation with trees has not been particularly successful. However, the study also concluded that state-of-the-art reclamation practices exist that could create mine soils that are superior to native soils for growing trees. West Virginia adopted new rules for commercial forestry incorporating these state-of-the-art reclamation practices.

The EIS process involves evaluating ways of addressing cumulative impacts from multiple mining activities in the same watershed. The more headwater streams in a given watershed which are filled, the more difficult it will be to protect the aquatic ecosystem downstream. The same point can be made of land disturbance and forest fragmentation. Regulations require cumulative impact assessments in connection with approval of new mines. However, the assessment of cumulative impacts has not been rigorous.

The Mining and Reclamation Technology Symposium included presentations on mining techniques, equipment selection, mining cost analysis, coal market forecast through 2020, and panel discussions on alternative reclamation possibilities, approximate original contour, and post-mining land use. Presentations by mining companies indicated that the potential for new investment was highly dependent on the price of coal.

- A nationwide study of surface-mining blasting complaints undertaken as part of routine OSM oversight characterized the nature of blasting complaints received in a one year period. Within the EIS study area, the vast majority of the 637 complaints lodged pertain to annoyance (76 percent), followed by vibration damage (33 percent), water wells (14 percent), dust and fumes (4 percent), and flyrock (2 percent). Following investigation of the 637 complaints by the state regulatory authorities, only 59 of the complaints resulted in violations of the approved regulatory programs. Another EIS chartered study monitored 11 surface mining blasts for the incidence of respirable dust and fumes from incomplete combustion. The monitoring generally found that neither measure posed hazardous levels beyond 1000 feet from the detonation.

- In April 1999, EPA, COE, OSM, FWS, and WVDEP entered into a Memorandum of Understanding (MOU) to enhance cooperation and communication among the agencies in order to ensure compliance with all applicable Federal and State laws, improve timeliness and predictability in the mining permit process, and minimize adverse environmental impacts from surface coal mining and valley fills. Progress has been made, but full implementation has not occurred. The agencies will continue to work together to:

- enhance coordination between Federal and state agencies to address Endangered Species Act concerns earlier in the permitting cycle;

- improve coordination of public participation requirements for both SMCRA and CWA programs by combining public comment requests and hearings wherever possible;

- use the SMCRA permit application process to provide information that can satisfy applicable CWA and National Environmental Policy Act responsibilities;

- develop water monitoring protocols for use by applicants for larger or multiple-valley fill permits that, when implemented, will fulfill SMCRA and CWA requirements, allow better permitting decisions, and improve assessment of aquatic impacts;

- increase coordination among the agencies to address flooding potential from surface mining; and

- develop unified guidance on the appropriate types of compensatory mitigation.

- Because of inconsistent state approval of post-mining land uses justifying non-AOC reclamation, OSM issued a national policy spelling out what lands uses were appropriate and the type of demonstration required by SMCRA for approval.

Alternatives to be Evaluated in the Draft EIS:

As the stated purpose of the EIS is to "consider developing agency policies, guidance, and coordinated agency decision-making processes to minimize, to the maximum extent practicable, the adverse environmental effects to waters of the United States and to fish and wildlife resources affected by mountaintop mining operations and to environmental resources that could be affected by size and location of excess spoil disposal sites in valley fills," the agencies formulated alternatives for the draft EIS that evaluate changes to the current restrictions on mountaintop mining operations in varying degrees. The alternatives use watershed size as a frame of reference as described below. This is considered a definitive and practical basis for comparing the economic and environmental consequences among the respective alternatives. A preferred alternative will not be determined until the draft EIS has been circulated for public review and public comments have been considered.

- Alternative A is the baseline alternative, which reflects agency policies, guidance, and decision-making processes in effect prior to the December 1998 settlement agreement between the plaintiffs and the COE, USEPA, USOSM, USFWS, and WVDEP. Pre-settlement conditions are how agencies may have continued to operate their regulatory programs if there had not been a lawsuit. This alternative also reflects the environmental consequences that would be expected to occur if the agencies were to revert back to presettlement programs should the current Federal Court ruling in *Bragg v. Robertson (Bragg*, Civ. No. 2:98-0636 S.D. WV) be overturned. Under this alternative, fills would

not be restricted to any particular stream segment.

- Alternative B would restrict fills to the uppermost reaches of the watershed, and recommend improvements to other baseline regulatory programs governing mountaintop mining operations. For study purposes, the watershed size being evaluated ranges from 0 to 75 acres.

- Alternative C would authorize the placement of fill further downstream, possibly under the Corps of Engineer's CWA Section 404 Nationwide Permit Program, provided certain fill minimization requirements are met (such as AOC Plus Fill Optimization and/or Section 404(b)(1) avoidance tests). For study purposes, the watershed size being evaluated ranges from 76 to 250 acres.

- Alternative D is similar to Alternative A in that fills would not be restricted to any particular stream segment, but it differs substantially from Alternative A in that many new programmatic actions would be implemented to reduce the aquatic, terrestrial, and community impact concerns raised during the scoping process. Alternative D reflects most closely the restrictions on filling that have been used during the interim permitting process under the 1998 Settlement Agreement.

A number of specific programmatic actions have been developed to address aquatic, terrestrial, and community impact concerns raised during the scoping sessions held for the EIS. None of these actions, which are listed in the full status report, will be selected for implementation until they have been fully evaluated in the draft EIS.

Pending Initiatives:

- A study of the economic effects of restricting mining by watershed size (35, 75, 150, and 250 acres) is underway. Results will show the impacts on tax revenues, utility prices, as well as direct and indirect mining employment. The anticipated costs for implementing government actions for each of the EIS alternatives is also under evaluation.

- A study designed to assess the impacts of historic, current, and potential mountaintop removal mining on land use and development patterns in West Virginia is nearing completion. Using a combination of remote sensing and geographic information system (GIS) based analysis, the study will show the market need for flat land based on proximity and demographics. A catalogue of actual versus proposed post-mining land use for past mountaintop removal sites will be presented.

- A future mining study is underway that will use GIS, combined with mining engineering principles, to show areas of potential mountaintop surface mining in steep slope Appalachia.

- A GIS-based modeling effort is being carried out independently by the Canaan Valley Institute which includes assessing the cumulative impacts of present and future mining on

a major-watershed basis. The results of that effort will be useful for the cumulative impact section of the EIS. Land use changes will be modeled using specific environmental indicators, such as percent headwater streams impacted, degree of forest fragmentation, etc.

- A Groundwater Hydrology Workshop was held which involved discussions of the requirements for baseline data collection, hydrologic consequence analyses, and typical hydrologic impacts related to surface mining. Findings and conclusions from the workshop will be published on compact disk in the next month.

- Sampling of fish populations and diversity occurred on 5 major basins in West Virginia and 1 in Kentucky. Data analysis is ongoing.

- Additional modeling of storm runoff effects on downstream water levels is underway to assess reclamation configurations of AOC + and reforestation ground cover. A site in Kentucky will be modeled under several "during mining" scenarios as well.

- OSM commissioned two research studies to evaluate the effect of blasting on wells and non-traditional residential construction. The studies may not be completed before issuance of the draft EIS, but results should be available prior to publication of the final EIS.

- Stream chemistry samples were collected by WVDEP mine inspectors at the same sites used in the completed macroinvertebrate analysis. Stream sampling began in October, 1999 and results are available through May 2000. This sampling is expected to continue through January 2001. Quality assurance/data verification reviews will be conducted and a report is anticipated to be available in Spring 2001.

- Macroinvertebrate and water quality studies were performed in several watersheds located in both West Virginia and Kentucky to assess the impact of mountaintop mining/valley fills on aquatic resources. While the results have been published for the studies conducted in West Virginia, the results in Kentucky are not expected to be available until Spring 2001.

Conclusion:

This summary was intended to update the public on the Federal and State initiatives that have been undertaken since the December 1998 settlement agreement, and the level of effort that remains to be completed prior to the issuance of a draft EIS later this year. A more detailed report will be placed on EPA's mountaintop mining web page at www.epa.gov/region3/mtntop at a later date. For further information, please contact Mr. William J. Hoffman at either (215) 814-2995 or Hoffman.William@epa.gov.

William Hoffman
08/29/01 09:12 AM

To: Cindy_Tibbott@fws.gov
Subject: Re: MTM/VF EIS cumulative impact assessment

Jennifer- After giving it some thought- I tend to agree.

Cindy_Tibbott@fws.gov

Cindy_Tibbott@fws.gov
v
06/26/01 10:59 AM

To: "Stump, Jennifer M." <jstump@GFNET.com>
cc: William Hoffman/R3/USEPA/US@EPA, "Kogelmann, Wilhelm (\"Chip\")" <wkogelmann@geodecisions.com>, handel@assop.rutgers.edu, Dave_Densmore@fws.gov, Daniel_Ramsey@fws.gov
Subject: Re: MTM/VF EIS cumulative impact assessment

Hi Jennifer,

Thanks for sending out the landscape assessment plan for comment.

I am very concerned about running all of the Alternatives without a 0% forest recovery scenario, for the following reasons:

With all due respect to Burger's research, re-establishing native hardwood forests on reclaimed mines is still experimental. We don't know what the long-term success will be.

Even if hardwood forests can be re-established, it should be intuitively obvious that they'll be a drastically different ecosystem from pre-mining forests for generations, if not thousands of years, until leaf litter builds up, an understory and herbaceous plant community develop, and hydrologic conditions can re-establish themselves. "Forest recovery" in your scenarios implies that we're getting back exactly what we lost.

The industry has shown a lot of opposition to implementing Burger's recommendations. If they completely balk at widespread implementation (to the 50%, 75%, or 100% level), then we have no representation that will depict the impacts of each valley fill restriction alternative.

West Virginia talks of the need for the flat areas created by mines for commercial development purposes. This almost certainly conflicts with a 75% and 100% reforestation scenario, and probably even 50%.

"Contemporaneous reclamation" is sort of an oxymoron when we're talking about trees. If most of the mining impacts happen in the next 15 years or so, it will be 40+ years beyond reclamation until we have pseudo-"forest revery".

Therefore, I recommend we run a 0% forest recovery for each Alternative.

"Stump, Jennifer M." <jstump@GFNET

To: "'cindy_tibbott@fws.gov'"

EXHIBIT 5

.com>

06/06/01
02:58 PM

<cindy_tibbott@fws.gov>
cc: 'WILLIAM HOFFMAN'
<HOFFMAN.WILLIAM@epamail.epa.gov
>, "Kogelmann, Wilhelm
(\"Chip\")"
<wkogelmann@geodecisions.com>
Subject: MTM/VF EIS
cumulative impact assessment

<<approach.wpd>> As we discussed, the attached file outlines our approach to the landscape scale cumulative impact study for the MTM/VF EIS. We are developing a separate file outlining data coverages that we are planning to use. We are in the beginning stages at this point. We welcome comments and suggestions for improvement. Thank you, Jennifer Stump

(See attached file: approach.wpd)

approach.wpd

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Problems Identified/Confirmed/Inferred by Technical Studies

I. Streams- Direct Loss of Headwater Streams

Problem: EIS studies have found that hundreds of miles of headwater streams have already been lost to valley fill activities. Experts convened for a symposium on the value of headwater streams advised the EIS agencies that headwater streams are extremely valuable in terms of the biological services they perform for downstream aquatic ecosystems. Many of the concerns raised by these experts, such as the loss of organic matter processing and transport from the filled streams, could not be studied with the funding and time restrictions of the EIS. However, limited field studies did confirm that healthy and diverse macroinvertebrate communities are found in the uppermost reaches of unmined headwater streams.

Recommendations: No scientific basis could be established for arriving at an environmentally "acceptable" amount of stream loss (e.g., a maximum allowable percentage of watershed that could be filled without adverse effect). Therefore, because headwater streams provide important ecological functions, direct impacts should be avoided to the greatest practicable extent.

II. Streams- Macroinvertebrates

Problem: This investigation found that macroinvertebrate communities located downstream of mining operations are impaired relative to control streams. A general decline in the population of pollution intolerant species (primarily Mayflies) was observed, which is indicative of a general decline in water quality, and a general decline in the overall health of the stream. Habitat or substrate did not seem to be the controlling factor in these studies.

Recommendations: Water chemistry monitoring efforts should be continued to establish potential cause and effect relationships, ie- can specific chemicals be linked to the biological impairment. Should such relationships be established, consideration should then be given to developing or revising water quality criteria designed to protect aquatic life. Consideration should also be given to the types of controls that might be implemented to reduce these pollutant loadings.

III. Streams- Fisheries

Problem: Preliminary results from this investigation found a decline in the population of pollution intolerant fish species downstream of mining operations, which is indicative of a general decline in water quality, and a general decline in the overall health of the stream.

Recommendations: Water chemistry monitoring efforts should be continued to establish

EXHIBIT 6

potential cause and effect relationships, ie- can specific chemicals be linked to the biological impairment. Should such relationships be established, consideration should then be given to developing or revising water quality criteria designed to protect aquatic life. Consideration should also be given to the types of controls that might be implemented to reduce these pollutant loadings.

IV. Streams- Water Quality

Problem: Preliminary results from this investigation found that a number of parameters were elevated downstream of mining operations and that even higher concentrations were found downstream of fills. Differences varied by several orders of magnitude. Specific conductance values differed by hundreds of uohm/cm2. Sulfate concentrations differed by the hundreds of mg/L. Alkalinity, total calcium, and total magnesium differed in the tens of mg/L. Chloride, total potassium, and total sodium differed in the mg/L range. The preliminary investigation also found that mining activity in the study area does not appear to cause any difference in several parameters. Those are: dissolved aluminum, dissolved iron, dissolved manganese, total beryllium, total cadmium, total copper, total manganese, total mercury, total phosphorous, total silver, and total zinc. Analysis is ongoing and the results are subject to change.

Recommendations: Water chemistry monitoring efforts should be continued to establish potential cause and effect relationships, ie- can specific chemicals be linked to the biological impairment. Should such relationships be established, consideration should then be given to developing or revising water quality criteria designed to protect aquatic life. Consideration should also be given to the types of controls that might be implemented to reduce these pollutant loadings.

V. Wetlands:

Problem: This investigation concluded that wetland resources do not seem to be a major natural land cover type in the steep slope terrain of West Virginia. The percentage of vegetated wetlands (PF, PEM, PSS designations) in the five watersheds studied was found to be extremely low, representing less than 1/10 of 1% of the watershed in all cases. The majority of the NWI wetlands in these watersheds, furthermore, consisted of unvegetated wetlands, and appeared in most cases to be sediment ponds (PUB designations) associated with mined sites.

The investigation also found that wetlands are becoming established in many sediment structures located on the tops of mined areas. The wetland functions being provided at the ten wetland sites studied (mainly linear drainage structures and basin depressions) varied. Many of the wetland systems were providing excellent sediment stabilization functions, and a few were providing good water quality (defined as nutrient retention) and wildlife functions.

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Recommendations: Opportunities appear to exist for the creation of functioning wetland systems on mined sites. Planned wetlands, if incorporated into the restoration design, can provide valuable functions by enhancing sediment stabilization, water quality improvement (nutrient retention), and wildlife habitat on mined sites. As the structures studied were designed to control sediment, we expected them to score highly in this regard. The defined water quality function, on the other hand, is very much dependent on vegetative cover within the wetland system, and the low percentage of vegetative cover at these sites appears to be the reason for their low scores in this regard. Wildlife scores are also highly dependent on the vegetative communities present, the degree of interspersion, and other physical and biological features of the system.

VI. Aquatic Ecosystem Enhancement:

Problem: This investigation/symposium found that it is difficult if not impossible to reconstruct free flowing streams on or adjacent to mined sites. The difficulty results from the inability to capture sufficient groundwater flows necessary to provide a constant source of flow for the new stream. Only in rare instances will flows be sufficiently captured such that a new stream can be created on the mined site.

The investigation/symposium also found that it is possible to create functioning wetland systems on mined sites, and that offsite restoration/enhancement opportunities do exist as a means of compensating for lost resources.

Recommendations: While mitigation or compensation for stream losses that generally takes the form of restoring degraded streams at offsite locations will seldom replace the functions lost in the headwater areas, they can provide or enhance other aquatic ecosystem functions, and may be considered as possible mitigation measures in limited situations.

Ponds and wetland areas have been created on mining sites, in connection with sediment control structures, and these areas do perform some aquatic functions. However, it is common practice to remove the structures after the bonding period because of safety and/or long-term management concerns. Consideration might be given to leaving shallow pond-wetland resources on site.

With respect to the mitigating downstream effects, the stream studies discussed above have observed that certain chemical parameters are being elevated downstream from valley fill operations, and that these water quality impacts may responsible for the adverse effects that are being observed in downstream biological communities. Further work is necessary, therefore, to evaluate these potential cause and effect relationships and to develop appropriate controls to minimize such effects.

VII. Post Mining Land Use

Problem: This investigation found that many sites are not being developed as envisioned when PMLU variances are granted, and that the supply of flat land seems to outweigh the demand.

Recommendations: Greater consideration should be given to improving a site's infrastructure (access, water supply and other utilities, etc) if residential, commercial, or industrial PMLU is the objective.

VIII Soil Health/Forest Productivity

Problem: Current reclamation practices result in conditions that discourage the re-establishment of trees.

- Requirements for erosion control have promoted the use of vigorous herbaceous vegetation that prevents the establishment of trees
- Requirements for erosion control and site stability have resulted in excessive compaction of the rooting medium, preventing establishment and/or proper growth of trees
- Native topsoils, which contain "all of the living matter that makes the collection of sand, silt and clay a living soil capable of sustaining plant life," are rarely salvaged.
    - Variances to the requirement that topsoil be removed, segregated, stockpiled, and saved for redistribution are routinely granted
    - "Recognizing that all topsoil is not created equally, topsoil substitutes are permissible, provided the new material can be shown to be as good as or better than the original topsoil....this is an area where on-the-ground failures occur. The approved substitute material is often whatever material ends up on top, regardless of the pre-mining overburden tests."
    - When selective overburden handling does occur, there is a bias towards salvaging fine-textured, high-pH soil materials that are good in an agronomic sense; that is, they provide favorable chemical conditions for the growth of grasses and legumes. These materials have a negative impact on the growth of native trees.
    - State surface mining laws require that "the permit include a discussion of the utility and capacity of the reclaimed land to support a variety of alternative uses. This requirement has not been thoroughly addressed by mining applicants or strictly required by regulatory agencies. It is a significant contributing factor why forestry land use is not routinely chosen for or successful on reclaimed mined lands."

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Recommendations:

- OSM and state regulatory authorities should continue to work toward promoting reforestation; this will require eliminating some barriers while assuring compliance with other provisions.
- Forestry might be considered by the U.S. Army Corps of Engineers as an appropriate on-site mitigation for 404 cumulative impacts such as forest fragmentation or deforestation
- The SMCRA regulatory authority could view a forestry PMLU as an acceptable offset of cumulative hydrologic impacts

IX Terrestrial Plants

Problems:

- The study found no evidence that native hardwood forests, including their herbaceous understory component, will eventually recolonize large mountaintop mine sites using current reclamation methods.

X Wildlife

Problems:

- On large-scale steep slope mines, wildlife typical of forest habitats is replaced by wildlife typical of grassland or shrub habitats.
- For birds, abundances of the forest interior guild, and some forest interior species, were significantly lower in fragmented forest than in intact forest. Some forest species also were detected more frequently at points further from mine edges.
- Populations of forest birds will be detrimentally impacted by the loss and fragmentation of mature forest habitat in the mixed mesophytic forest region, which has the highest bird diversity in forested habitats in the eastern United States. Fragmentation-sensitive species such as the cerulean warbler, Louisiana waterthrush, worm-eating warbler, black-and-white warbler, and yellow-throated vireo will likely be negatively impacted as forested habitat is lost and fragmented from MTM/VF.

- The study was unable to document that grassland habitats on large-scale surface mines are good for grassland birds, and left open the question that they may in fact be population "sinks." Additional study is taking place this summer.

- MTM/VF results in a shift from a woodland raptor community to a grassland raptor community.

- Salamander species decreased while snake species increased as a result of MTM/VF. Herpetofaunal species that require loose soil, moist conditions, and woody or leaf litter ground cover generally were absent from reclaimed sites.

Recommendations

Minimizing soil compaction, establishing a diverse vegetative cover, and adding coarse woody debris to reclaimed sies would provide habitat for some herpetofaunal species more quickly after mining.

Other problems inferred by the study results

- Large-scale surface coal mining will result in the conversion of large portions of one of the most heavily forested areas of the country, also considered one of the most biologically diverse, to grassland habitat.
    - Unless reclamation practices are changed drastically, it can be assumed that this forest to grassland conversion is, for all practical purposes, permanent.
    - Even if reclamation practices are changed, we must still consider the recovery of a functional mesophytic forest ecosystem as a long-term ecological experiment with uncertain results.
    - Various other potential post mining land uses, such as economic development projects, may conflict with reforestation efforts.

- The forests of this particular geographic area are the core breeding area for a number of forest interior bird species that have extremely limited breeding ranges, including the cerulean warbler, which is currently under review by the Fish and Wildlife Service for endangered species listing. Even if the grassland habitat created by reclamation is optimal habitat for grassland bird species (which may not be the case), this region is outside of the primary breeding range of these widely-distributed grassland species.

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- Forest products important to local economies and social heritage will be adversely affected.

XI Fill Inventory

Problem: At least, 563 miles of intermittent and perennial streams have been buried under valley fills in the central Appalachian region.

XII Fill Stability

Problem: This investigation has found no systemic failings in the regulations pertaining to ensuring valley fill stability.

XIII Flooding (Corp of Engineer Modeling & USGS Fill Hydrology Study)

Problem: Extensive surface mining can potentially alter the hydrography of the watershed by either increasing or decreasing the peak flow discharge associated with storm events. The effect of a surface mine is dependent upon site-specific factors and other factors within the drainage basin down gradient from mining. The following are generalizations related to mining factors that tend to affect peak flow discharge:

- Increases in the size of the drainage basin increase peak flow,
- Conversely decreases in the size of the drainage basin decrease peak flow,
- Overly compacted soils and mine spoil increases runoff,
- Conversely, loosely compacted soils and mine spoil decrease runoff,
- Steeper slopes causes greater runoff than gentler slopes,
- Tree-covered surfaces lessen peak flow more than grass-covered surfaces.
- Diversion ditches and sediment ponds lessen peak discharge, and
- Excess spoil fills tend to increase base flow and lessen peak flow.

Recommendations: All mine permit applications should be analyzed rigorously to discern the impact on surface flow alternations.

XIV Blasting Complaint Study

Problems: Coalfield residents near large-scale surface coal mines are frequently frightened, startled, and annoyed by blasting.

Recommendation: Better communication between the coal operators and the citizens in the community may significantly reduce these kinds of complaints. Some operators and regulatory authorities have successfully held public meetings to inform and involve the public on its proposed blasting plans.

XV Blasting Dust and Fumes (Dr. English study & Blasting Complaint Study)

Problem: Blasting fumes and gases are byproducts of the explosive reaction of blasting agents used on modern mining. Because the temperature of blasting gases and fumes is higher than surrounding air, most often these byproducts rise to higher altitudes and dissipate. Blasting dust is heavier than air and drops from suspension a short distance from the site of blast. However, both dust and fumes may affect residential areas adjacent to the blast area under certain meteorological conditions.

Recommendations: Blasting must not be conducted when winds will direct dust and fumes towards nearby populated areas or during times of temperature inversions. Mining companies typically refrain from blasting during temperature inversions. Some mining operations use windsocks located in various locations around the mine in order to monitor wind speed and direction. This has proven to be a low technology and low cost solution to the dust, fume and gas concerns.

XVI Blasting Effects on Water Wells (J. Hawkins Presentation Groundwater Symposium)

Problems: The minor water fluctuations attributed to blasting may cause a short term turbidity problem, but do not pose any long term problems. This fluctuation would not cause well collapse, as fluctuations from recharge and pumping occurs frequently.

Most of the long term impacts on water quality are due to the mining (the breakup of the rocks). The mechanisms of these changes (via pyrite oxidation) are well known.

They increase the dissolved solids component especially sulfate, iron, manganese, aluminum, and sometimes sodium. Occasionally, other minor metals show up.

XVII Groundwater Impacts (R.Evans Presentation Groundwater Symposium)

This document was prepared on Wednesday, August 15, 2001 as a working draft for internal interagency discussions among members representing agencies of the EIS steering team. The problems/recommendations contained in this document have not been confirmed or endorsed by the EIS Steering team or their respective agencies.

Problems: Sulfates, conductivity, total dissolved solids, and metals frequently increase in the groundwater as the result of mining.

Recharge to stress relief systems frequently changes spoil water storage and discharge.

Recharge of "spoil water" to streams frequently increases the sulfates, conductance, and total dissolved solids. Metal content may increase but will usually return to premining levels after reclamation.

Recommendations: Further research is needed to study the relationship of geochemistry to post-mining water quality.

Addition research is needed to study the flow path of ground water through mine spoil.

Problems Identified with Program Coordination

XVIII State Programs with Federal Oversight

Problem: Requests for interpretations and guidance from the federal oversight authority by the states are routinely given little to no response.

1. AOC
2. Buffer Zone
3. Adverse or Minimal Impact standards or guidance.
4. Cumulative Impacts
5. Mitigation

Problem: Lack of clearly defined terms in different Federal programs required for permits/actions at the same facility and their relationship to each other.

1. Waste vs. Fill
2. Minimal impact vs. Adversely impacting.
3. Many different stream definitions.

Problem: Lack of coordination between Federal programs for the same facility.

1. Complete SMCRA permit required before USACE 404 permit reviewed.
2. Endangered Species comments received after SMCRA permit completed
3. USEPA objections under 402 after SMCRA permit issued or 404 issued.

Problem: Lack of regulatory equality in the Federal programs from state to state.

1. Some states were required to get their 404 permits while others were allowed to slide.

This document was prepared on Wednesday, August 15, 2001 as a working draft for internal interagency discussions among members representing agencies of the EIS steering team. The problems/recommendations contained in this document have not been confirmed or endorsed by the EIS Steering team or their respective agencies.

2. Some states have had been held to a higher degree or standard in the same USEPA regions while others are not. Regulations not approved for changes in standards when other states don't even have that standard in the same EPA Region.
3. USACE not implementing same standards of requirements in VA, KY and WV for 404 permits.

United States Department of the Interior

OFFICE OF THE DEPUTY SECRETARY
Washington, D.C. 20240

OCT -5 2001

James L. Connaughton, Chairman
Council on Environmental Quality
722 Jackson Place, N.W.
Washington, DC 20503

Marcus Peacock, Associate Director
Natural Resources, Energy & Science
Office of Management and Budget
725 17th Street, NW
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Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Michael Parker, Assistant Secretary
Department of the Army
Corps of Engineers
441 G Street, NW
Washington, D.C. 20314

Subject: Mountaintop Mining/Valley Fills Issues

Dear Colleagues:

As you know, key goals for this Administration are environmental protection, maintaining the nation's energy supply, and government efficiency. Addressing the controversy surrounding mountaintop coal mining in Appalachia provides an opportunity to further these goals.

Our agencies have been grappling with the mountaintop mining issues for some time. There have been, and continue to be, legal challenges to implementation of various provisions of the Clean Water Act (CWA) and the Surface Mining Control and Reclamation Act (SMCRA) that relate to mountaintop mining and valley fills. Our Office of Surface Mining and Fish and Wildlife Service have been working since 1998 with the Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (COE) to carry out a settlement agreement entered in December 1998 in the *Bragg v Robertson* litigation in the U.S. District Court for the Southern District of West Virginia. That settlement agreement established a coordinated decision making process for the review of new coal mining projects with "valley fills," and recognized the need for the preparation of an environmental impact statement (EIS).

We believe the mountaintop mining/valley fill EIS is the logical vehicle to address environmental protection and promote government efficiency, while meeting the nation's energy needs. In order to address these needs, the EIS must consider and recommend solutions to well-documented, significant impacts that will allow steep slope Appalachian coal mining to proceed in an environmentally sound manner. We do not believe that the EIS, as currently drafted, focuses sufficiently on these goals. We must ensure that the EIS lay the groundwork for coordinating our respective regulatory jurisdiction in the most efficient manner. At a minimum, this would require that the EIS focus on centralizing and streamlining coal mine permitting, and minimizing or mitigating environmental impacts.

cc: FWS

EXHIBIT 7

-01 MON 02:25 PM USFWS PA FIELD OFFICE FAX NO: 8142340748 P. 03

10/11/2001 11:15 FAX 703 358 1865 FED. PROGRAM ACTIVITIES @002

2

I understand we have a meeting scheduled for Tuesday, October 9 at 11:00 a.m. and hope that we will be able to begin discussions on possible strategies that will enable us to move forward to achieve these goals. Thank you in advance for your personal attention to this important matter.

Sincerely,

J. Steven Griles
Deputy Secretary

cc: ASLM, OSM, FWS

William Hoffman
10/11/01 04:01 PM

To: Dave_Densmore@fws.gov
cc: Cindy_Tibbott@fws.gov, Mike Robinson <MROBINSO@OSMRE.GOV>
Subject: Re: EIS Direction

Many of us will be in Annapolis tomorrow. We might be able to set up a call around 1pm.

Dave_Densmore@fws.gov

Dave_Densmore@fws.gov
10/11/01 12:43 PM

To: Mike Robinson <MROBINSO@OSMRE.GOV>
cc: Cindy_Tibbott@fws.gov
Subject: Re: EIS Direction

Mike:

Needless to say, this is not a shining example of our Department having "spoken with one voice," since I can find no evidence of anyone at FWS having reviewed or concurred with this approach. Regardless, based on my initial review, I find I cannot support this approach, if for no other reason than the record having amply demonstrated that it has been the absence of federal oversight, not its confounding influence, that has gotten us in the fix we are in now. Unfortunately, we will have no opportunity to discuss this further next week, since my entire office will be at a workshop at NCTC. If folks can get together this afternoon or tomorrow, that might work better.

DD.

"Mike Robinson" <MROBINSO@OSMRE.GOV>
10/11/01 09:06 AM

To: <hanmer.rebecca@epa.gov>, <Hoffman.William@epamail.epa.gov>, <Peck.Gregory@epamail.epa.gov>, <Benjamin_Tuggle@fws.gov>, <Cindy_Tibbott@fws.gov>, <dave_densmore@fws.gov>, <jstump@gfnet.com>, <Charles.K.Stark@HQ02.USACE.ARMY.MIL>, <goonrad@imcc.isa.us>, <Rodney.L.Woods@lrdor.usace.army.mil>, <Michael.D.Gheen@lrh01.usace.army.mil>, <dvandelinde@mail.dep.state.wv.us>, <rhunter@mail.dep.state.wv.us>, <Paul.Rothman@mail.state.ky.us>, <bcl@mme.state.va.us>, <lsv@mme.state.va.us>
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EXHIBIT 8

<GMILLER@OSMRE.GOV>, "Glenda Owens"
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"Roger

Calhoun" <RCALHOUN@OSMRE.GOV>,

"Robert A.

Penn" <RPENN@OSMRE.GOV>
Subject: EIS Direction

OSM has received some executive direction from the Department of the Interior on a overall theme for the EIS to embrace. Attached is a sketch of our thoughts on how we can accomplish the stated original intent of the EIS--both improving environmental protection and government efficiency. It's also in line with the President's desired direction for the energy policy. the document was shared by Deputy Secretary Griles with many of the principals of our agencies this Monday at a meeting with the President's council on Environmental Quality. I'd like to have an EIS Steering Committee call to explain/discuss this concept and get your feedback sometime next week for an hour/hour and a half. Could you let me know of your availability for a call on, say Tuesday or Wednesday?

(See attached file: WhitePaper.final.doc)

WhitePaper.final.

William Heffman
10/19/01 02:59 PM

To: Elaine Suriano/DC/USEPA/US@EPA
Subject: MTM/VF Briefing & OSM Vision

Here's the briefing we gave for the RA yesterday. It should come up if you click on it, and it should keep working with each click. I've also included the "vision" that OSM developed in response to the Griles letter.

October2001RABriefing1.e OSMVision.wp

EXHIBIT 9

Executive Summary

A Plan to Address Mountaintop Mining Issues in Appalachia

> The Vision: ***Streamline the regulation of valley fills by creating a "one-stop" permitting authority to satisfy all pertinent statutory requirements.***

Background:

- The federal government provides regulatory grants to states to implement the **Clean Water Act** (CWA, Sections 401 and 402) and the **Surface Mining Control and Reclamation Act** (SMCRA) within their borders.
- The states permit surface coal mining and reclamation operations under this delegated SMCRA authority--with oversight by the federal **Office of Surface Mining (OSM)**. The states also permit associated effluent discharges to the "waters of the United States" from these mining operations under delegated CWA authority--with oversight by the **Environmental Protection Agency (EPA).**
- The **Corps of Engineers (COE)** is responsible for regulation of "discharges" of "dredge and fill" material (overburden, or excess spoil) from surface coal mining operations under CWA, Section 404.
- A settlement agreement in the Southern District Federal Court of West Virginia (*Bragg v Robertson*) provided an interim framework for surface coal mining permit scrutiny by these agencies until a programmatic environmental impact statement (EIS) on steep slope, Appalachian mountaintop mining and valley fills is complete. The EIS purpose is to:

  > "Consider developing agency policies, guidance, and coordinated decision-making processes to minimize, to the maximum extent practicable, adverse environmental effects to waters of the United States and to fish and wildlife resources from mountaintop mining operations and to other environmental resources that could be affected by the size and location of fill material in valley fill sites."

- The EIS analyzes alternatives for enhancing environmental protection, advancing government efficiency, and allowing for continued efficient production of energy resources for the nation.

Statutory Concepts:

- The CWA established general principles providing that impacts to the waters of the U.S. must be no more than minimal unless there is adequate mitigation (nor cause more than significant adverse effect unless there are no practical alternatives) to offset the impacts. A project that proposes to affect these waters must demonstrate that alternatives are considered; that the alternative chosen results in minimized impacts; and that no practical alternative to conducting the project exists. "Nationwide" or "general" permits authorized by the COE allow projects where net impacts are "less than minimal," in accordance with CWA Section 404. Where impacts exceed this threshold, a more comprehensive "individual" permit and **National Environmental Policy Act (NEPA)** analyses are required.
- SMCRA seeks similar minimization of impacts (to the maximum extent practicable), but its requirements cannot supersede the CWA.

Problem:

- The *Bragg* settlement agreement increased COE and EPA involvement in the review of coal mining permit applications, effectively creating independent state and federal regulatory processes. Similar, overlapping, or different SMCRA and CWA statutory provisions cause government inefficiency and economic instability within the volatile Appalachian economy. This situation has improved, but not maximized, environmental protection.

Vision/Solution:

We propose a comprehensive "one-stop" permitting authority within state government to satisfy CWA and SMCRA. Programmatic changes to certain SMCRA regulations can provide a framework to ensure the environmental protection envisioned by the CWA (as well as SMCRA), and promote government efficiency. These rule changes are subject to the Administrative Procedure Act, and should be adopted only after opportunity for full public review and comment (and concurrence by EPA). The NEPA compliance requirements for proposed SMCRA regulations would be satisfied by concurrent publication of the draft EIS with similar alternatives to the proposed regulations.

- OSM would establish permitting requirements and performance standards, through rulemaking, to assure compliance with CWA 404. Subsequently, the states would amend their programs to reflect these requirements. These proposed rules would include modification of the stream buffer zone rule, development of fill minimization criteria, and necessary adjustment to other OSM regulations to establish comparable requirements to the CWA 404(b)(1) guidelines.
  - Currently, neither SMCRA or state regulations contain provisions for the applicant to demonstrate the alternatives for excess spoil placement considered when planning a coal mine. Nor is it explicit in OSM or state rules that fill minimization considerations are a requisite part of an application.

- The SBZ rule is viewed as more stringent than CWA standards. Revision of the SBZ rule must be integrated with all other regulatory changes to reflect the CWA 404 requirements.

- SMCRA rulemaking would complement the ongoing COE rulemaking to define overburden material generated by surface coal mining as "fill" (for the purposes of CWA Section 404).

- We propose to delegate the CWA 404 program to the SMCRA regulatory authority. The CWA encourages delegation; which is possible for: 1) all types of dredge and fill activities in the waters of the United States; or, 2) certain limited but similar activities (e.g., coal mining). Two states obtained total delegation of the CWA 404 program, and 15 states can issue "state programmatic general permits." This proposal is practical because:

  - The SMCRA permit is already the platform for hydrological and biological impact assessments, as well as engineering alternative analyses envisioned by 404(b)(1) Guidelines.

  - State SMCRA- and CWA-delegated program staff includes large, multi-disciplinary groups of scientists and engineers familiar with mining proposals and their impacts. State programs have infrastructure in place for inspection and enforcement. COE districts have more limited staff and mining expertise to conduct permit review, inspection and enforcement.

  - The state regulatory authority agencies must routinely coordinate CWA 401 and 402 and SMCRA permit issuance. Integrating CWA 404 evaluations with this current practice is a fundamentally efficient and reasonable process control goal for the Federal and state governments to embrace.

  - Combining the existing state CWA 401 water quality certification authority for mitigation with state 404 delegation provides all the necessary components for the states to review applications and issue permits that create less than minimal impacts as envisioned by the CWA.

Benefits of the Vision:

- CWA 404 delegation to the states introduces a number of efficiencies. "One-stop" permitting for coal mining and reclamation operations will result in:

  - earlier and better public participation
  - integrated regulatory programs under two federal environmental statutes
  - streamlined processes with improved environmental protection
  - reduced processing times and costs of permit applications

  - reduced program administration costs
  - a single entity with coal mining regulatory expertise
  - a framework for efficient, environmentally responsible production of energy resources
  - clear environmental performance targets for industry and regulators based on combined analyses of SMCRA and CWA performance standards
  - complete permit information provided to one reviewing agency
  - better basis for decisions and findings by state regulators
  - allows states, which know more about environmental resources within their borders, local conditions, etc. to set priorities for mitigation
  - comprehensive Endangered Species Act evaluation and consultation process

Refocusing of the EIS:

- The proposed vision accomplishes the stated intent of the EIS. The EIS, as currently drafted, however, does not sufficiently consider options for centralizing and streamlining coal mine permitting. The scope of the EIS should be narrowed to focus on minimizing and mitigating impacts to the waters of the U.S rather than the broad scope currently contained in the draft.

William Hoffman
01/08/02 08:59 AM

To: Rich Kampf/R3/USEPA/US@EPA, Gregory Peck/DC/USEPA/US@EPA, Elaine Suriano/DC/USEPA/US@EPA, John Goodin/DC/USEPA/US@EPA, Brenda Mallory/DC/USEPA/US@EPA, John Lishman/DC/USEPA/US@EPA, Rebecca Hanmer/R3/USEPA/US@EPA, Ray George/R3/USEPA/US@EPA, Kathy Hodgkiss/R3/USEPA/US@EPA
Subject: Alternative Framework

This came right out of the blue last night. There has been absolutely no agency coordination (to my knowledge), and it flys in the face of all of our previous agreements not to designate a preferred alternative. It is also not a NEPA or CEQ requirement.

If anyone knows any background on this, I would appreciate being brought up to speed.

---- Forwarded by William Hoffman/R3/USEPA/US on 01/08/02 08:46 AM ----

Michael Robinson <robinson@agi.net>
01/07/02 08:12 PM

To: William Hoffman/R3/USEPA/US@EPA, jstump@gfnet.com, dvandelinde@mail.dep.state.wv.us, rhunter@mail.dep.state.wv.us, James.M.Townsend@lrl02.usace.army.mil, Paul.Rothman@mail.state.ky.us, lsv@mme.state.va.us, cstark8396@aol.com
cc:
Subject: Alternative Framework

Attached is a new Alternative Framework Table for discussion on tomorrow's or ensuing day's conference calls. You will note that I made Alternative B the "proposed action," and re-lettered former Alternative C to B and former D to C.

This is a result of discussions with our NEPA folks and in line with what NEPA and the CEQ rules require--which we can explain tomorrow or whenever. I also moved other actions to Tier III because they didn't fit the overall theme of our alternatives. To be able to explain the alternatives to executives in our agencies/Departments, I also added a statement on Alternative A for each action and a problem statement to justify each action. These additions are not to be considered complete as written, but just a somewhat illustrative or a mock-up of a proposed format that I believe we should complete for presentation "up our ladders." These changes are based on feedback from OSM management on the earlier framework dated 12/20.

I'll talk to you folks tomorrow at 1 pm, on the same dial-up number that we've been using. If you've misplaced the number, give me a call 412.937.2882 and I'll give it to you. MKR

Alternative Framework.1.7.02.2wpd.

EXHIBIT 10

William Hoffman
01/22/02 11:02 AM

To: Elaine Suriano/DC/USEPA/US@EPA
cc: Cliff Rader/DC/USEPA/US@EPA, Gregory Peck/DC/USEPA/US@EPA, James Havard/DC/USEPA/US@EPA, Joseph Montgomery/DC/USEPA/US@EPA, Steven Neugeboren/DC/USEPA/US@EPA
Subject: Re: Mt Top conf call on 1/23/02 at 1 PM

Just to clarify- OSM does agree that the terrestrial impacts are an issue that will be "addressed" in the EIS- they are, however, claiming that the terrestrial issues are insignificant, and that the terrestrial issues should take a back seat in the EIS analysis. We have developed "tiered" actions in the EIS. The first tier includes actions we will implement, but that are slightly different depending on the alternative that gets selected. For example, enhanced monitoring will be required under every alternative in the EIS, but the monitoring will be more comprehensive under the alternative that allows fills into perennial streams than for the alternative that restricts fills to the ephemeral zone. The second tier includes actions that will be implemented the same under every alternative- such as enhanced permit coordination procedures. The third tier includes actions that would be nice to do, but no commitment is being made to do them. Further- because tier 3 is a "wish list" so to speak, the EIS would not evaluate the environmental consequences of their implementation with the same degree of analysis- since they never may be implemented. The current problem is that OSM is trying to put all the actions related to terrestrial concerns into Tier 3- which reduces the scope of analysis significantly.

More importantly- and the focus of our concern- is that OSM is also claiming that even if they conceded terrestrial issues to be significant, SMCRA does not give them the authority to do anything about it. They have even gone so far as to say that SMCRA prohibits them from taking actions in the uplands to require reforestation, because that is a deal that gets worked out between the landowner and the mining operator under the PMLU agreement (that they must approve before a variance is granted????). If the PMLU is for pasture- they argue that they cannot require the landowner to do something else (but again- they have to approve the PMLU as a variance from returning the land to its previous condition). In a nutshell, we are arguing that if the premining area is forest, then the operator must get a variance to return it to anything else but forest- and that SMCRA does not prohibit them from taking actions to ensure the land is returned to forest.

Elaine Suriano

Elaine Suriano
01/22/02 10:27 AM

To: William Hoffman/R3/USEPA/US@EPA, Joseph Montgomery/DC/USEPA/US@EPA, Steven Neugeboren/DC/USEPA/US@EPA, Gregory Peck/DC/USEPA/US@EPA
cc: Cliff Rader/DC/USEPA/US@EPA, James Havard/DC/USEPA/US@EPA
Subject: Mt Top conf call on 1/23/02 at 1 PM

Per my earlier email summarized below it looks like most folks are available at 1 PM on Wed, 1/23. If you have not sent me the # we need to call you at please do so.

Greg - if you are unable to participate please ask someone else from your staff to sit in and have them send me their phone #. Thks.

The EIS workgroup knows they have to address impacts to terrestrial resources, but OSM maintains they do not have to address it in the alternatives since they do not have the authority to take action. CEQ will give them more info on that count. While I wouldn't think of telling DOI what authorities it has officially, but we are entitled to a reasoned discussion about authority and prohibitions of taking actions to address

EXHIBIT 11